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FISHES OF THE PHILIPPINE ISLANDS.

By BARTON WARREN EVERMANN, A. M., Ph. D., and ALVIN SEALE, A. B.

BUREAU OF FISHERIES DOCUMENT NO. 607.

B. B. F. 1906—4

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Among the exhibits made by the U. S. Bureau of Insular Affairs at the Louisiana Purchase Exposition, held at St. Louis, Missouri, during the summer and fall of 1904, was a considerable collection of fishes from the Philippine Islands. This collection had been made under the direction of the Philippine government for the specific purpose mentioned. At the close of the exposition the authorities turned the entire collection over to the U. S. Bureau of Fisheries for study and report.

The localities represented in the collection are as follows:

San Fabian, Pangasinan, Luzon.—San Fabian is situated on the Gulf of Lingayen, about 100 miles north of Manila. The collection from this place was made by Mr. C. L. Hall and is a large and important one.

Bacon, Sorsogon, Luzon.—Sorsogon is the most southern province of Luzon. Bacon is situated in the northern part of the province, on Albay Inlet, in approximately latitude 13° 3′ north and longitude 124° east.

Bulan, Sorsogon, Luzon.—Bulan is on the west coast of Sorsogon, near the southern end of the province, approximately in latitude 12° 38′ north, longitude 123° 22′ east.

The collections from Bacon and Bulan are more extensive than any of the others. They were made by Prof. Charles J. Pierson, of Auburn, Nebraska, while a teacher in the Philippines.

Zamboanga, Mindanao.—Zamboanga, in the province of the same name, is at the extreme southern end of the western arm of Mindanao, in latitude 6° 54′ north and longitude 122° east. It is situated on the Strait of Basilan, about 500 miles south of Manila.

The specimens from this place were collected by Braulio Barbazo, who made also a small collection at Jolo, presumably on the island of Jolo.

The specimens were originally preserved in formalin in most cases, and afterwards transferred to alcohol. The excellent condition of most of the specimens in all of these collections indicates that the respective collectors did their work well and conscientiously, and the species represented show that the collecting was done intelligently and with proper discrimination. It is apparent that an intelligent and successful effort was made to have as many as possible of the important food fishes of the islands represented in the collections; and the large representation of the

smaller, less conspicuous species evidences the fact that methods of collecting were employed such as are known only to the trained naturalist. In this way many specimens of more than usual scientific interest were secured.

The fish-fauna of the Philippines has been but little studied. Enough is known, however, to show that it is an exceedingly rich one. Not only is it rich in species, but many of the species are abundant in individuals; indeed, many species occur in great prodigality.

Although the native methods employed in the fisheries are primitive, the methods of preparing the products of the fisheries for use equally primitive, and methods of preserving the products are practically unknown, nevertheless fish food forms a large and important item in the diet of the inhabitants of the Philippines. The natural food resources of Philippine waters are believed to be enormous, embracing not only a great number of fishes, but many species of edible mollusks, crustaceans, and algæ, which as yet are scarcely recognized in the islands as fit for food. The development of these resources is a matter worthy the best efforts of the government. Effort should first be directed toward determining what the resources really are—what species of fishes and other aquatic animals and what aquatic plants occur, how abundant each is, its geographic distribution among the islands, and its life history, including its food and its enemies. The present paper is a contribution to that end.

The collections upon which this report is based embrace a total of nearly 2,500 specimens, representing 89 families, 139 genera, and 296 species, of which 2 genera and 22 species are believed to be new, and are here described.

It has not been deemed necessary to give full descriptions of any species except those believed to be new. Ordinarily attention has been called only to those characters which will prove useful in identifying the species. All the specimens bear tin-tag numbers, and these are printed in the report in order that each specimen may be fully authenticated. The first series of specimens, including the types of all the new species, is deposited in the U. S. National Museum. The first duplicate series has been sent to the government museum at Manila. The second duplicate series has been deposited in the museum of Stanford University, and the third in the reserve series of the U. S. Bureau of Fisheries.

The vernacular names, printed in italics, are those furnished by the collectors. Only such synonymy is given as is necessary to connect this report with works which a student of Philippine fishes must consult in studying these species. Usually the first reference to any particular publication is made complete; subsequent references to the same publication are made more brief. In synonymy the name of the locality from which each species was originally described is printed in heavy-face type; other locality references are printed in ordinary type and are in parentheses.

Two editions of the Histoire Naturelle des Poissons by Cuvier and Valenciennes were consulted, the octavo edition of 22 volumes and the quarto edition, also of 22

NOTE.—We take this opportunity to thank Prof. Charles J. Pierson, of Auburn, Nebraska, for the use of his field notes, and Messrs. Edmund Lee Goldsborough and Howard Walton Clark, of the Bureau of Fisheries, for assistance of various kinds in the preparation of this report. The accompanying illustrations are from drawings by Mr. A. H. Baldwin and Miss Annie Swift Buckelew. Those made by Miss Buckelew are figures 11, 12, 15, and 17.

volumes. The dates of publication of these two editions are identical, but the pagination is different. In our references we have given the page of each edition, that of the quarto edition (the one in our library) first, followed by that of the octavo edition in parenthesis. The bibliography at the end of the report lists the more important publications consulted.

Family ELOPIDÆ.

1. Elops saurus Linnæus.

One large specimen from Bulan (no. 4182; length 34 in.), agreeing in all essential respects with others from Florida.

Elops saurus Linnæus, Systema Naturæ, ed. XII, 518, 1766, **Carolina**; Günther, Catalogue Fishes British Museum, VII, 470, 1868; Day, Fishes of India, 649, pl. CLXVI, fig. 1, 1878; Jordan & Evermann, Fishes of North and Middle America, pt. I, 410, 1896 (Oct. 3; Jordan & Evermann, American Food and Game Fishes, 86, fig., 1902; Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. I, 1903 (1905), 53, fig. 8 (Honolulu).

2. Megalops cyprinoides (Broussonet). *Buan-buan.*

Three specimens from Bulan (no. 4151, 4153, and 4183; length 10.5 to 16.5 in.) and one from Tarlac (no. 4132; length 11 in.).

Clupea cyprinoides Broussonet, Ichth., I, pl. 9, 1782.
Megalops cyprinoides, Günther, Cat., VII, 471.

Family CHIROCENTRIDÆ.

3. Chirocentrus dorab (Forskål). *Botete.*

Three fine specimens from San Fabian (no. 4179, 4180, and 4181; length 15.2 to 16 in.) and one from Bacon (no. 3410; length 13.25 in.).

Clupea dorab Forskal Descr. Anim., 72, 1775, **Red Sea.**
Chirocentrus dorab, Günther, Cat., VII, 475; Day, Fishes India, 652, pl. CLXVI, fig. 3.

Family CLUPEIDÆ.

4. Stolephorus delicatulus (Bennett).

Two hundred and fifteen specimens from Bacon (no. 3915, 3502, 4080, and 4009; length 1.5 to 2.75 in.) and five from Bulan (no. 3756; length 2.75 in.).

Clupea delicatula Bennett, Proc. Comm. Zool. Soc. London, I, 168, 1831, **Mauritius.**
Spratelloides delicatula, Günther, Cat., VII, 464.

5. Stolephorus gracilis (Temminck & Schlegel).

Three specimens from Bacon (no. 3768 and 3771; length 1 to 2.2 in.).

This species (with dorsal 11 and anal 13) can not be identical with *Atherina japonica* Houttuyn (with dorsal 17 and anal 22 or 23) as suggested by Dr. Jordan.

Clupea gracilis Temminck & Schlegel, Fauna Japonica, Pisces, 238, pl. CVIII, fig. 2, 1842, **Japan.**
Spratelloides gracilis, Günther, Cat., VII, 465.

6. Harengula moluccensis Bleeker.

Ten specimens from Bacon (no. 3606 to 3609, 3449 to 3551, 4026 and 4027, and 3932; length 4.2 to 5.75 in.) and 8 from Bulan (no. 3426 to 3432 and 3893; length 4.1 to 5.25 in.).

The base of the ventrals is under the middle of the dorsal, whose origin is much nearer tip of snout than to base of caudal, or midway between tip of snout and base of last anal ray. In Bleeker's figure of this species the ventrals are shown too far forward, as he explains in the text.

Harengula moluccensis Bleeker, Nat. Tijds. Ned. Ind., IV, 1853, 609, **Ternate; Amboyna**; Günther, Cat., VII, 427.

7. Sardinella clupeoides (Bleeker).

One specimen from Bulan (no. 3243; length 8.75 in.), agreeing well with Bleeker's figure.

Amblygaster clupeoides Bleeker, Journ. Ind. Archipel., 73, 1849, Macassar, Celebes; Bleeker, Atlas, VI, 103, pl. CCLXXII, fig. 1.
Clupea clupeoides, Günther, Cat., VII, 425.

8. Sardinella perforata (Cantor).

Twelve specimens from Bacon (no. 3658 to 3669; length 4.5 to 5.5 in.), agreeing perfectly with Bleeker's figure and description.

Clupeonia perforata Cantor, Cat. Malayan Fishes, 294, 1850, Sea of Pinang.
Spratella kowala Bleeker, Haringachtige Visschen, 28, Verh. Bat. Gen., XXIV, 1852, Batavia.
Clupea perforata, Günther, Cat., VII, 424.

9. Ilisha hœvenii (Bleeker). *Tubac.*

One specimen from San Fabian (no. 4127; length 6.5 in.).

Pellona hœvenii Bleeker, Haringachtige Visschen, 21, Verh. Bat. Gen., XXIV, 1852, Batavia; Günther, Cat., VII, 455.
Ilisha hœvenii Bleeker, Atlas, VI, 117, pl. CCLXIX, fig. 2.

Family DOROSOMATIDÆ.

10. Konosirus thrissa (Linnæus).

Three fine specimens (no. 4170 to 4172; length 8 to 8.5 in.), without definite locality. Last dorsal ray extending to base of caudal.

Clupea thrissa Osbeck, Reise nach Ostindien und China, 336, 1765; Linnæus, Syst. Nat., ed. X, 318, 1758.
Clupea nasus Bloch, Ichth., XII, pl. CCCCXXIX, fig. 1, 1797.
Chatoessus nasus, Günther, Cat., VII, 407.
Dorosoma nasus, Bleeker, Atlas, VI, 142, pl. CCLX, fig. 4.

11. Anodontostoma chacunda (Buchanan-Hamilton). *Cabashi.*

Two fine specimens from Bacon (no. 3231 and 3232; length 6.1 and 7.1 in.). This species lacks the dorsal filament.

Clupanodon chacunda Buchanan-Hamilton, Fish. Ganges, 246, 1822, Ganges River.
Chatoessus chacunda, Günther, Cat., VII, 411.
Chatoessus selangkat Bleeker, Haringachtige Visschen, 47, Verh. Bat. Gen., XXIV, Batavia.
Dorosoma chacunda, Bleeker, Atlas, VI, pl. CCLXI, figs. 5 (var. *selangkat*) and 6.

Family ENGRAULIDÆ.

12. Anchovia indica (Van Hasselt).

Ten specimens from Bulan (no. 3989 and 3973; length 3.5 to 5.2 in.).

Engraulis indicus Van Hasselt, Algem. Konst-Letterbode, 329, 1823.
Engraulis russellii, Günther, Cat., VII, 390.
Stolephorus indicus, Bleeker, Atlas, VI, 127, pl. CCLIX, fig. 2.

Family SYNODONTIDÆ.

13. Saurida argyrophanes (Richardson). *Bitilla.*

Two specimens from San Fabian (no. 3673 and 3674; length 7.1 and 7.75 in.) and one from Zamboanga (No. 4083; length 7.5 in.).

Saurus argyrophanes Richardson, Ichth. Chin., in Rept. Brit. Assoc., XV, 1845, 302.
Saurida argyrophanes, Günther, Cat., V, 400, 1864.
Aulopus elongatus Temminck & Schlegel, Fauna Japonica, Pisces, 233, pl. CV, fig. 2, 1846.

14. Saurida gracilis (Quoy & Gaimard).

Three specimens from Bacon (no. 3983, 3984 and 3986; length 4.75 in.).

Saurus gracilis Quoy & Gaimard, Voy. Uran., Zool., 224, 1824, Sandwich Islands.
Saurida nebulosus, Günther, Cat., V, 399; Bleeker, Atlas, VI, 155, pl. CCLXXVII, fig. 1.
Saurida gracilis, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 65 (Hilo and Honolulu).

15. Trachinocephalus myops (Forster).

One specimen from Bulan (no. 4129; length 8 in.).

Salmo myops Forster in Bloch & Schneider, Syst. Ichth., 421, 1801, St. Helena.
Saurus myops, Günther, Cat., v, 398.
Trachinocephalus myops, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, 1903 (1905), 62, fig. 13 (Hilo and Honolulu).

16. Synodus varius (Lacépède).

Two specimens from Bulan (no. 3670 and 3671; length 7 and 7.25 in.) and one from Bacon (no. 3982; length 4 in.).

Salmo varius Lacépède, Hist. Nat. Poiss., v, 224, pl. 3, fig. 3, 1803, Ile de France.
Saurus varius, Günther, Cat., v, 395; in part.
Synodus varius, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 63, pl. II and fig. 14 (Hilo and Honolulu).

Family MYCTOPHIDÆ.

17. Myctophum gilberti Evermann & Seale, new species.

Head 3.5 in length; depth 4.5; eye 3 in head; dorsal XII; anal 16; snout 2 in eye; interorbital 1.5; scales large, thin, smooth, deciduous, 30 in lateral line.

Body oblong, compressed, the forehead evenly rounded; lower jaw extending slightly beyond upper; depth of caudal peduncle 3 in head, equal to diameter of eye; maxillary equal to postocular part of head, its distal end extending beyond eye a distance equal to one-half of orbit; mandible 1.7 in head; mouth oblique.

Teeth on jaws and palatines in narrow bands; no teeth on vomer; bands of teeth on mesopterygoids; 16 developed gillrakers on lower limb of first gill-arch, the longest 2 in eye.

Arrangement of photophores: Caudal 2, one at middle of caudal base, the other at origin of lowest caudal ray; posteroanals 4; anteroanals 6, the anterior one slightly separated from its fellows; ventrals 4, the anterior one in axil of ventral fin; thoracics 3; pectorals 3, in form of a triangle; mandibular 3; opercular 2;

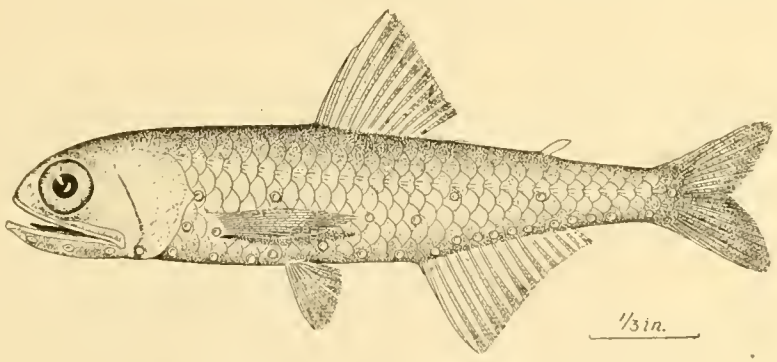

FIG. 1. *Myctophum gilberti* Evermann & Seale, new species. Type.

posterolateral 1, very near lateral line and vertically on a line between interspace of anal photophores and base of adipose dorsal; mediolaterals 3, forming a very obtuse triangle, the upper one very near lateral line, the lower one midway between lateral line and origin of anal fin, a little too far front to form a true oblique line from posterior mediolateral to posterior ventral photophore, the anterior one on a horizontal line with the last and vertically over the posterior margin of second ventral; anterolateral 1, just above middle of pectoral fin and on first scale below lateral line.

Origin of dorsal fin midway between tip of snout and posterior anal photophore, the longest ray equal in length to distance from pupil to posterior margin of opercle; origin of adipose dorsal midway between posterior axil of dorsal and base of caudal; origin of anal midway between anterior thoracic photophore and lower caudal photophore, directly below axil of dorsal, its longest ray 1.5 in head; ventrals 2.5 in head, their origin below seventh scale of lateral line; pectoral long, 1.1 in head, tip extending to anterior mediolateral photophore; caudal forked, about 1.75 in head (mutilated).

Color in spirits, yellowish white; base of dorsal black; a black area at upper margin of operele; a dusky band on anterior third of mandible; base of caudal and top of caudal peduncle dusky.

This species seems most nearly related to *M. reinhardtii* Lütken.

Four specimens from Bulan, length 2.1 to 2.5 in. Type (field no. 3841) no. 55900, U. S. National Museum; length 2.5 in., from Bulan, Sorsogon; coll. Charles J. Pierson. Of the 3 cotypes, 1 (field no. 3841) is no. 20,000, Stanford Univ. Mus.; another (field no. 3841) is in Museum at Manila, and a third (field no. 3841) is no. 4535, U. S. Bureau of Fisheries. Named for Dr. Charles H. Gilbert.

Family ANGUILLIDÆ.

18. Anguilla mauritiana Bennett. *Pabucang-binhi.*

One fine specimen from Tarlac (no. 4063; length 23 in.).

Anguilla mauritiana Bennett, Proc. Comm. Zool. Soc. Lond. 1831, 128, **Mauritius.**
Muræna manillensis Bleeker, Atlas, VI, 10, pl. CLXXXVIII, fig. 2, **Manila, Luzon.**
Anguilla mauritiana, Günther, Cat., VIII, 25.

Family MURÆNIDÆ.

19. Gymnothorax richardsoni (Bleeker).

One small specimen from San Fabian (no. 3842; length 5.2 in.).

Muræna richardsani Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 296, **Wahai, Ceram;** Günther, Cat., VIII, 118.

20. Gymnothorax afer Bloch.

One specimen from Bacon (no. 3769; length 2.5 in.), which we refer doubtfully to this species.

Gymnothorax afer Bloch, Ichth., XII, 73, pl. CCCCXVII, 1797.
Muræna afra, Günther, Cat., VIII, 123.

Family PLOTOSIDÆ.

21. Plotosus anguillaris (Bloch). *Sumbilang.*

Eleven specimens from Jolo (no. 3352 to 3357 and 3421 to 3425; length 5 to 7 in.), eleven fine specimens from Bacon (no. 3365 to 3368, 3475 to 3480 and 4034; length 5.1 to 7 in.), and 48 young from Bacon (no. 4031; length, 1 to 1.5 in.).

Platystacus anguillaris Bloch, Ichth., XI, 49, pl. CCCLXXI, fig. 1, 1797.
Plotosus anguillaris, Günther, Cat., V, 24.

Family SILURIDÆ.

22. Netuma thalassinus (Rüppell). *Tabomomo.*

One specimen from San Fabian (no. 3244; length 8 in.), three large specimens from Bulan (no. 4186, 4187, and 4188; length 19 to 20 in.); two small specimens from "Philippine Islands," without local label (no. 3939; length 3.5 and 5 in.).

Bagrus thalassinus Rüppell, Neue Wirb., Fische, 75, pl. 20, fig. 2, 1837, **Massaua.**
Arius thalassinus, Günther, Cat., V, 139.

Family FISTULARIIDÆ.

23. Fistularia petimba Lacépède. *Droal.*

Two specimens, one from San Fabian (no. 3407; length 15 in.), and one from Bacon (no. 4189; length 8.25 in.).

Fistularia petimba Lacépède, Hist. Nat. Poiss., V, 349, 1803, **New Britain, Reunion Island;** Jordan & Evermann, Bull. U. S. Fish. Comm., XXIII, 1903 (1905), 116 (Honolulu, Hilo, Kailua, Necker Island, and Hanalei Bay, Kauai; also Japan, Samoa, Philippines, and Papeete, Tahiti).

24. Fistularia serrata Cuvier. *Sinsiri.*

Three young from Bacon (no. 3984; length 9 to 12 in.).

Fistularia serrata Cuvier, Règne Anim., ed. I, vol. II, 349, 1817, America; Günther, Cat., III, 533; Jordan & Evermann, Bull. U. S. Fish. Comm., XXIII, pt. I, 1903 (1905), 116 (Honolulu).

Family CENTRISCIDÆ.

25. Aeoliscus strigatus (Günther).

Two specimens from Bacon (no. 3943; length 4.75 and 5 in.).

Amphisile strigata Günther, Cat., III, 528, Java.

Family SYNGNATHIDÆ.

26. Gasterotokeus biaculeatus (Bloch).

Fifteen specimens from Bacon (no. 3447 to 3451, 3505 to 3508, 3597 to 3599, 3600, 3601, 3991, and 4190; length 5.25 to 9.25 in.).

With the exception of no. 4190, these specimens are all pale green, with a more or less distinct dark stripe through the eye. The body is depressed, the dorsal surface of middle body ring being at least 2.5 in ventral, differing in this respect from specimen no. 4190, which is described as follows:

Head 5.2 in length; depth 5.1 in head, the greatest width of body 3.25 in head; snout 1.75; width of snout at middle one-third less than its depth; eye 4.5 in snout; interorbital 5.75; dorsal 41; rings 17—40; dorsal fin on anterior 10 caudal rings; anal opening on anterior caudal ring; origin of dorsal midway between tip of tail and nostril; tail prehensile, no caudal fin; body elongate, depressed, the ventral surface twice as wide as dorsal; plates without spines; pectoral 5.75 in head. Color greenish; snout with 2 indistinct greenish bands.

Syngnathus biaculeatus Bloch, Ichth., IV, pl. CXXI, figs. 1 and 2, 1797, no locality given.
Gasterotokeus biaculeatus, Günther, Cat., VIII, 194; Day, Fishes India, 681, pl. CLXXIV, fig. 5.

27. Corythroichthys eleræ Evermann & Seale, new species.

Head 7.2 in length; snout 2; eye 2.5 in snout; dorsal 29; rings 16—36; a single ridge across cheek; interorbital 1.75 in eye; snout cylindrical, its depth and width being equal; lower surface of head and ventral surface of snout forming a straight line; depth of body greater than its width; length of body including head

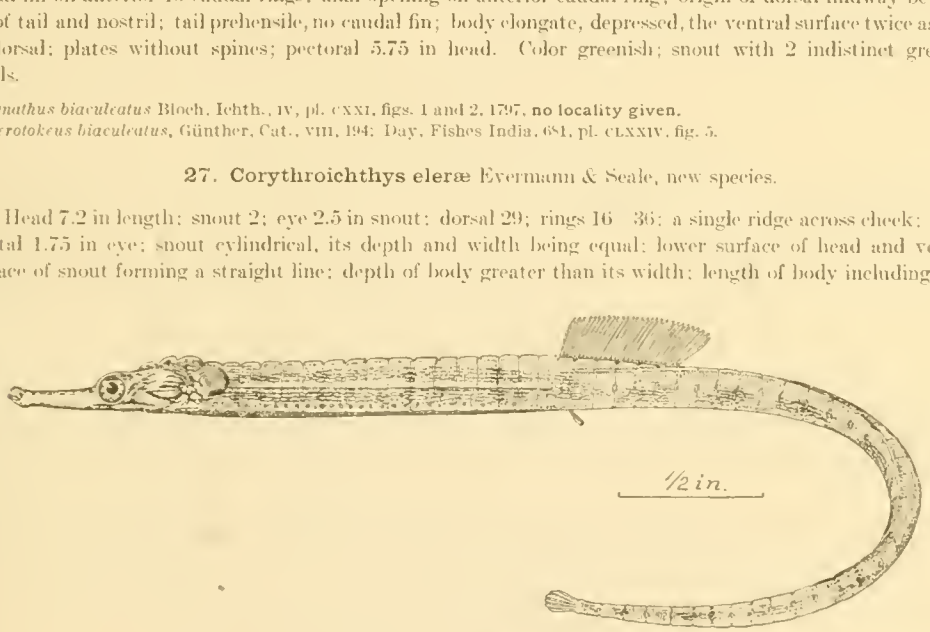

FIG. 2.—*Corythroichthys elerx* Evermann & Seale, new species. Type.

1.45 in length of tail without caudal; a distinct nuchal ridge with 2 deep scallops; upper lateral margin of plates projecting, forming a scalloped margin on side of back; ventral surface of body rounded, dorsal surface concave; vent one ring in front of origin of dorsal; dorsal fin on anterior 6 rings of tail; origin of dorsal midway between tip of snout and twenty-fifth ring of tail; height of dorsal fin equal to depth of body at middle of fin; pectoral 14, its length 4.75 in head; caudal 2.2 in snout; anal rays 3, inconspicuous.

Color in spirits, pale green, with blotches of darker green on side; 3 black cross-bands on under part of thorax; some fine dark longitudinal lines on opercle, 3 on under part of head; no dark lines through eye; snout with about 5 indistinct bands of dots; a dusky blotch on base of pectoral (not always present); dorsal unmarked.

Very near *C. conspicillatus* (Jenyns), but with longer snout, more posterior dorsal and the dorsal scales more roughened.

Eight specimens from Bacon (no. 3898 and 3944; length 4.2 to 4.75 in.).

Type (field no. 3944), no. 55908, U. S. National Museum, 4.75 in. in length, from Bacon, Sorsogon; collected by Chas. J. Pierson. Of the cotypes, each bearing field no. 3898, one is no. 20001, Stanford University Museum; another is no. 4536, U. S. Bureau of Fisheries, and one each is in the museum at Manila, the Philadelphia Academy of Natural Sciences, the U. S. National Museum, the Museum of Comparative Zoology, the Indiana University Museum, and the Field Museum of Natural History.

Family BELONIDÆ.

28. Tylosurus giganteus (Temminck & Schlegel).

Five specimens from Bacon (no. 3697, 3698, and 3378 to 3380; length 8.75 to 12 in.). These agree well with specimens from Hawai'.

Belone gigantea Temminck & Schlegel, Fauna Japonica, Pisces, 245, 1846, **Nagasaki.**
Belone annulata, Günther, Cat., VI, 240.
Tylosurus giganteus, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 124, fig. 30 (Honolulu).

29. Tylosurus leiuroides (Bleeker).

One specimen from Bacon (no. 3519; length 11.25 in.); dorsal 21; anal 21.

Distinguished by the long nose and low dorsal fin.

Belone leiuroides Bleeker, Nat. Tijds. Ned. Ind., I, 1850, 479, **Billiton**; Günther, Cat., VI, 243.

Family EXOCŒTIDÆ.

30. Hyporhamphus quoyi (Cuvier & Valenciennes).

Three specimens from Bacon (no. 3460, 3617, and 3618; length 7 to 9.1 in.).

These agree well with Bleeker's figure.

Hemiramphus quoyi Cuvier & Valenciennes, Hist. Nat. Poiss., XIX, 26 (35), **New Guinea**; Günther, Cat., VI, 267; Bleeker, Atlas, VI, 57, pl. CCL, fig. 3.

31. Hyporhamphus dussumierii (Cuvier & Valenciennes).

Four specimens from Bacon (no. 4005 and 3962; length 2.25 to 4.5 in.), and one from Bulan (no. 3739; length 10 in.).

We have compared these specimens with others from Samoa identified by Jordan and Seale as *H. affinis* and find them indistinguishable, and we regard *H. affinis* Günther as a synonym of *H. dussumierii*.

Hemiramphus dussumerii Cuvier & Valenciennes, Hist. Nat. Poiss., XIX, 24 (33), pl. 554, **Seychelles**; Günther, Cat., VI, 266.

32. Hemiramphus marginatus (Forskål).

Four fine specimens from Bacon (no. 4160 to 4163; length 10 in.) agreeing with Bleeker's figure.

Esox marginatus Forskål, Descr. Anim., 57, 1775, **Red Sea.**
Hemirhamphus marginatus, Günther, Cat., VI, 270; Bleeker, Atlas, VI, 54, pl. CCLIV, fig. 4.

33. Cypsilurus simus (Cuvier & Valenciennes).

Two specimens from Bacon (no. 3308 and 3309; length 6.5 and 6.75 in.), two from Bulan (no. 3202 and 3203; length 9.2 and 9.75 in.), and one from the "Philippines," no definite label (no. 4164; length 9.3 in.). We have compared these with examples from Honolulu and find them to agree perfectly.

Exocatus simus Cuvier & Valenciennes, Hist. Nat. Poiss., XIX, 77 (105), **Hawaiian Islands.**
Cypsilurus simus, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 134, fig. 46 (Honolulu; Waimea and Hanamaulu Bay, Kauai; and Napili, Molokai).

34. Zenarchopterus dispar (Cuvier & Valenciennes).

One specimen, without lower jaw, and with mutilated caudal, probably belonging to this species, from Bacon (no. 4008; length, without bill, 4.5 in.). Dorsal XII; anal 11; scales 40.

Hemiramphus dispar Cuvier & Valenciennes, Hist. Nat. Poiss., XIX, 42 (58), pl. 558, 1846, Java; Günther, Cat., VI, 274.
Zenarchopterus dispar, Bleeker, Atlas, VI, 63, pl. CCLIII, fig. 4

35. Zenarchopterus philippinus Peters.

Forty-nine specimens from Bacon (no. 3384; length 3.5 to 4.5 in.). Dorsal 14; anal 15; head 4.5 in length; lower jaw 4.5 in head; scales 46; caudal forked.

Hemirhamphus (Zenarchopterus) philippinus Peters, Monatsb. Kön. Akad. Wiss. Berlin 1868, 273, Luzon.
Zenarchopterus philippinus, Bleeker, Atlas, VI, 63.

Family ATHERINIDÆ.

36. Atherina temminckii Bleeker.

Two specimens from Bulan (no. 3997; length 2.5 and 3.5 in.), and one from Bacon (no. 3751; length 3 in.). Head 4 in length; depth 6.3; eye 2.8 in head; snout 4.1; interorbital 3; dorsal VI–I, 9; anal 12.

Atherina temminckii Bleeker, Nat. Tijds. Ned. Ind., V, 1853, 506, Batavia; Jordan & Seale, Proc. U. S. National Museum, XXVIII, 1905, 774 (Negros).

37. Atherina lacunosa Forster.

Five specimens from Bacon (no. 3961; length 2.75 to 3.75 in.).

Head 3.8 in length without caudal; depth 4.6; eye 2.75 in head; snout 4.5; interorbital 3; dorsal V–I, 10; anal I, 13; scales 41–7; maxillary reaching vertical at anterior edge of pupil; origin of spinous dorsal slightly nearer anal than insertion of ventrals; no dark blotch on pectoral.

Atherina lacunosa Forster, Descr. Anim., 298, 1774, New Caledonia; probably not of Günther.

38. Atherina forskalii Rüppell.

Eighteen specimens from Bulan (no. 3833; length 2.1 to 3.2 in.), and 53 specimens from Bacon (no. 3653 and 3892; length 2 to 3.5 in.).

Atherina forskalii Rüppell, Neue Wirb., Fische, 132, pl. 33, fig. 1, 1835, Belama; Günther, Cat., III, 397; Day, Fishes India, 345, pl. LXXI, fig. 4.

Family MUGILIDÆ.

39. Mugil sundanensis Bleeker.

Nine specimens from Bacon (no. 3643 to 3651; length 4 to 6.2 in.).

Mugil sundanensis Bleeker, Nat. Tijds. Ned. Ind., IV, 265, Sumatra; Günther, Cat., III, 425.

40. Mugil planiceps Cuvier & Valenciennes.

Five specimens from Bulan (no. 3710 to 3714; length 6.5 to 8.75 in.).

Mugil planiceps Cuvier & Valenciennes, Hist. Nat. Poiss., XI, 90 (122) Calcutta; Günther, Cat., III, 428.

Family SPHYRÆNIDÆ.

41. Sphyræna jello Cuvier & Valenciennes.

Three specimens from Bacon (no. 4175 to 4177; length 13 to 14 in.) and 2 from Bulan (no. 4152 and 4153; length 16.35 and 19.5 in.). No. 4175 to 4177 are referred to this species with some doubt, as they are in such bad condition as to make the scale counts impossible, but in other respects they agree with *S. jello*.

Head 3.5 in length; depth 7.5; eye 6.4 in head; snout 2.1; interorbital 4.75; scales 16–130–20.

Sphyræna jello Cuvier & Valenciennes, Hist. Nat. Poiss., III, 258 (349), 1829, Vizagapatam; Günther, Cat., II, 337; Day, Fishes India, 342.

42. Sphyræna obtusata Cuvier & Valenciennes. *Dumbusan.*

One specimen from Bulan (no. 3411; length 7.5 in.). Head 3.1 in length; depth 6.1; eye 1.5 in head; snout 2.34.

Sphyræna obtusata Cuvier & Valenciennes, Hist. Nat. Poiss., III, 258 (350), Pondicherry; Günther, Cat., II, 339; Day, Fishes India, 343, pl. LXXI, fig. 5.

43. Sphyræna langsar Bleeker. *Domosot.*

One specimen from Bulan (no. 3412; length 8 in.), one from Bacon (no. 3942; length 5.5 in.), and 3 from San Fabian (no. 3677 and 4022; length 2.75 to 4.75 in.). These each have 75 scales in lateral line. This species is distinguished from *S. obtusata* by the longer snout and smaller scales.

Sphyræna langsar Bleeker, Nat. Tijds. Ned. Ind., VII, 367, Batjan; Günther, Cat., II, 340.

Family HOLOCENTRIDÆ.

44. Myripristis pralinius Cuvier & Valenciennes.

Two specimens from Bacon (no. 3223 and 3228; length 6.1 and 6.2 in.). These specimens show 6 indistinct yellowish longitudinal stripes below the lateral line. Depth 2.45 in length; head 3.25; eye 2 in head; snout 6.75; scales 4–38–6; dorsal X–1, 15; anal IV, 14; eye 6.1 in head; snout 3.5 in eye; large blunt projecting teeth in each jaw.

Myripristis pralinius Cuvier & Valenciennes, Hist. Nat. Poiss., III, 127 (170) and VII, 366 (486), New Ireland.
Myripristis bleekeri Günther, Cat., I, 20, 1859, Sea of Banda Neira; not *M. pralinius* of Günther.

45. Myripristis microphthalmus Bleeker.

Two specimens from Bacon (no. 3250 and 3723; length 7.25 and 7.5 in.) and one from Bulan (no. 3966; length 5 in.).

Head 3.25 in length; depth 2.45; eye 7 in head; scales 4–29–6; dorsal X–1, 14; anal IV, 12. These specimens agree well with others from Samoa.

Myripristis microphthalmus Bleeker, Nat. Tijds. Ned. Ind., III, 261, 1852, Amboyna; Atlas, IX, pl. CCCLVIII, fig. 2; Günther, Cat., I, 24.

46. Myripristis murdjan (Forskål).

Three specimens from Bacon (no. 3235, 3227 and 3637; length 6.25 to 8 in.), agreeing with Hawaiian specimens.

Sciæna murdjan Forskål, Descr. Anim., 48, 1775, Djidda, Red Sea.
Myripristis murdjan, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 157, pl. v (Honolulu, Hilo, Kailua, Laysan, and Samoa).

47. Myripristis macrolepis Bleeker. *Bagi-baga.*

One specimen (no. 3363; length 5.75 in.), from Zamboanga.

Head 3 in length; depth 2.3; eye 2.01 in head; snout 3 in eye; interorbital 3.75 in head; dorsal X–1, 15; anal IV, 12; scales 3–29–5, 6 scales in front of dorsal; maxillary 1.75 in head, its distal end under posterior margin of pupil.

Myripristis macrolepis Bleeker, Atlas, IX, pl. CCCLIX, fig. 3.

48. Holocentrus cornutus Bleeker.

One specimen from Bacon (no. 6919; length 5.25 in.) and one from Bulan (no. 6928; length 6.75 in.).

Head 3.2 in length; depth 2.8; eye 2.55 in head; snout 1.5; maxillary 3; mandible 2; scales 3–37–5; dorsal XI, 13; anal IV, 9, the fourth spine very long, nearly equal to head.

Color in spirits, yellowish, with dark longitudinal lines, the third from dorsal terminating in a dark caudal spot; membranes of spinous dorsal dark, first webs of anal black; outer margins of caudal dark.

Holocentrum cornutum Bleeker, Nat. Tijds. Ned. Ind., V, 240, Ceram; Günther, Cat., I, 45.

Family SCOMBRIDÆ.

49. Scomber brachysomus Bleeker. *Masangui*

One specimen from San Fabian (no. 3271; length 8.1 in.).

Gillrakers equal to distance from tip of snout to orbit, shorter than in *S. microlepidotus*, from which this species is easily distinguished by the deeper body.

Scomber brachysoma Bleeker, Nat. Tijds. Ned. Ind., I, 356, 1850, Batavia; Günther, Cat., II, 361; Day, Fishes India, 251.

50. Scomber microlepidotus Rüppell.

Two specimens from Bacon (no. 1173 and 4171; length 10 and 10.25 in.). Gillrakers long, equal to distance from tip of snout to middle of eye.

Scomber microlepidotus Rüppell, Neue Wirb., Fische, 38, pl. XI, fig. 2, 1837, Red Sea; Günther, Cat., II, 361, Day, Fishes India, 250, pl. LIV, figs. 3, 4, and 5; Fowler, Proc. Ac. Nat. Sci. Phila. 1904, 759.

51. Scomber japonicus Houttuyn.

One specimen from Bulan (no. 3912; length 5.45 in.). Blue above, silvery below. Head 3.25 in length; depth 5.2; dorsal IX, 12+V; anal II, 11+V.

This species is indistinguishable from the common chub mackerel (*S. colias*) of the Atlantic.

Scomber japonicus Houttuyn, Verh. Holl. Maat. Weet. Haarl., XX, 1782, 331, Japan; Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. I, 1903 (1905), 169, fig. 62.

52. Gymnosarda pelamis (Linnæus).

Two specimens from Bulan (no. 4184 and 4185; length 15 and 15.25 in.). Dorsal XVI—12+VIII; anal II—12+VII.

Scomber pelamis Linnæus, Syst. Nat., ed. X, 297, 1758, "in pelago inter Tropicos."
Thynnus pelamys, Günther, Cat., II, 364.
Gymnosarda pelamis, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. I, 1903 (1905), 172, fig. 64.

53. Rachycentron canadus (Linnæus).

One fine specimen from Bulan (no. 4151; length 24 in.). Head 4.05 in length; depth 6.3; eye 7.1 in head; snout 2.5; maxillary 2.5; scales about 332; dorsal VIII, 32; anal 27; lateral line with several strong sharp curves.

Gasterosteus canadus Linnæus, Syst. Nat., ed. XII, 491, 1766, Carolina.
Scomber niger Bloch, Ichth., X, 48, pl. CCCXXXVII, 1797.
Elacate pondicheriana Cuvier & Valenciennes, Hist. Nat. Poiss., VIII, 241 (329), 1831, Pondicherry.
Elacate niger, Günther, Cat., II, 375.
Rachycentron canadus, Jordan & Evermann, Fishes North and Mid. Amer., 948, pl. CXLVIII, fig. 401, 1896.

NESOGRAMMUS Evermann & Seale, new genus.

Nesogrammus Evermann & Seale, new genus of Scombridæ (*Nesogrammus piersoni*).

Body long and slender, completely covered with small, thin, deciduous scales; no corselet; lateral lines 2, the lower branch leaving the main lateral line under the base of third or fourth dorsal spine, from which point it extends nearly vertically downward to lower third of side, along which it runs, approximately parallel to the ventral line of body, to caudal peduncle. Ventrals I, 5; dorsal and anal finlets 7. Villiform teeth on vomer, palatines, and tongue; a single row of sharp, canine-like teeth in each jaw.

This genus is related to *Scomberomorus*, from which it differs, however, in the presence of two lateral lines and in the complete squamation of the body. (νησος, island; γραμμα, line.)

54. Nesogrammus piersoni Evermann & Seale, new species.

Head 4.5 in length; depth 4.75; eye 4.35 in head; snout 2.85; maxillary 2.25; mandible 1.9; dorsal XII+I, 9+VII; pectoral 1.9; ventral 3.2; anal I, 11+VII; scales 170 in upper and 145 in lower branch of lateral line.

Body elongate, moderately compressed; depth of caudal peduncle 1.9 in snout; head pointed; jaws equal; interorbital space flat, its width greater than eye; mouth large; maxillary slipping under preorbital

and ending under anterior third of eye, its distal end formed by the supplemental bone, pointed and directed slightly upward; base of mandible under middle of eye; teeth in jaws in a single row, rather strong, triangular, about 14 to 17 on each side; minute teeth on vomer, palatines, and tongue; gillrakers rather bluntly pointed, 15 on lower limb, the longest 3 in snout; opercle and preopercle entire, the posterior margin of preopercle with a wide anterior curve in its middle portion; cheek and opercle with fine scales; body entirely covered with fine, thin deciduous scales; lateral lines 2, the upper beginning at upper edge of opercular opening and running approximately parallel with the back to below the sixth dorsal finlet, where it curves downward and unites with the lower branch; lower branch originating under base of third dorsal spine, running nearly vertically downward to level of lower edge of pectoral, where it curves backward and extends along lower third of side to middle of caudal peduncle, where it again unites with the upper branch; no corselet; breast scaled; caudal peduncle with a median keel and a smaller one above and below it.

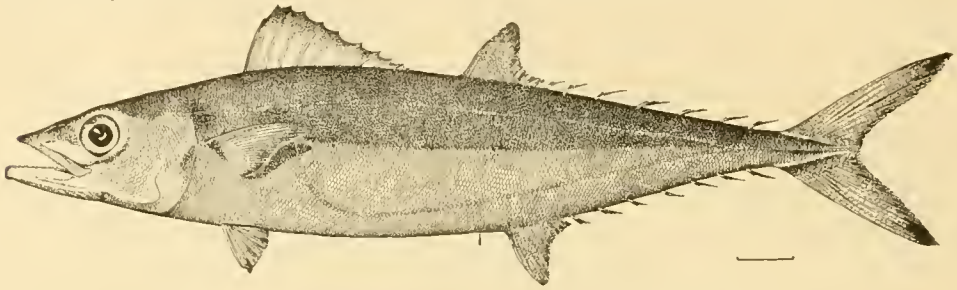

FIG. 3.—*Nesogrammus piersoni* Evermann & Seale, new species. Type.

Origin of spinous dorsal midway between tip of snout and third ray of soft dorsal; dorsal spines connected, except the 2 posterior ones, which do not protrude, the longest spine 2.75 in head, the 2 dorsals entirely separate; origin of soft dorsal slightly in advance of vent, its longest ray 2.75 in head; dorsal finlets 7; origin of anal midway between base of caudal and origin of ventrals, its longest ray 3.75 in head; anal finlets 7; no free spines in front of anal; origin of ventrals below axil of pectoral, their length 3 in head; caudal deeply forked.

Color in spirits, brownish above, silvery below; a large dusky blotch at origin of lateral line and in axil of pectoral; top of snout dusky; a dusky area through eye; membranes of spinous dorsal dusky; ventrals darker on posterior third; other fins with very slight wash of dusky.

One specimen (field no. 4178), the type, no. 55899, U. S. National Museum, 16 inches long, from Bulan, Sorsogon, P. I.; collected by Prof. Charles J. Pierson, for whom the species is named.

Family TRICHIURIDÆ.

55. Trichiurus haumela (Forskål). *Pinka.*

Head 7.5 in length; depth 14; eye 6.1 in head, 2 in snout; interorbital 2.5 in snout; dorsal 129; anal represented by 106 minute spines; teeth large, 18 in upper jaw, 20 in lower; no teeth on vomer, a few minute teeth on palatines; gillrakers consisting of small, sharp spines, about 14 on lower limb.

Color in spirits, silvery, bluish above; 2 bright yellow longitudinal stripes on lower half of body; dorsal yellow, with dusky margin.

One specimen from San Fabian (no. 3381; length 19.75 in.).

Clupea haumela Forskål, Descr. Anim., 72, 1775, **Red Sea.**
Trichiurus haumela, Günther, Cat., II, 348 (Malayan Peninsula; Amboyna).

Family CARANGIDÆ.

56. Scomberoides toloo-parah (Rüppell). *Cassisung.*

Two specimens from San Fabian (no. 3716 and 3717; length 6.25 and 6.5 in.).

Lichia toloo-parah Rüppell, Atlas, Fische, 91, 1828, **Massowah, Red Sea.**
Chorinemus toloo, Günther, Cat., II, 473.

57. Decapterus macrosomus Bleeker.

Twelve specimens from Bulan (No. 3345, 3347 to 3349, 3351, 3521, 3522, 3524, and 3531 to 3534; length 5.75 to 8 in.) and one from Bacon (no. 4146; length 6 in.).

Depth 5.5; head 3.75; about 59 plates or scales in straight portion of lateral line; origin of ventrals nearer to tip of snout than to anal. This fish is more elongate and has smaller plates than has *D. kurra*, and the distance between tips of ventrals and origin of anal is 1.5 in head, while in *D. kurra* it is much less, being about 2.5.

Decapterus macrosomus Bleeker, Nat. Tijds. Ned. Ind., 1, 358, 1850, Batavia.
Caranx macrosoma, Günther, Cat., II, 425.

58. Decapterus kurra Bleeker.

Six specimens from Bulan (no. 3350, 3346, 3911, 3913, 3914, and 3523; length 4 to 6 in.)

Head 3 in length; depth 4.5; plates 40; distance between tips of ventrals and origin of anal short, about 2.5 in head; origin of ventrals nearer origin of anal than to tip of snout.

Decapterus kurra Bleeker, Makreelachtige Visschen, 50, Verh. Bat. Gen., XXIV, 1852, Batavia.
Caranx kurra, Günther, Cat., II, 427; Day, Fishes India, 214, pl. LXVIII, fig. 5.

59. Seriola nigrofasciata (Rüppell).

One specimen from Bulan (no. 3602; length 6.2 in.)

Nomeus nigrofasciatus Rüppell, Atlas, Fische, 92, pl. 24, fig. 2, 1828, Red Sea.
Seriola nigrofasciata, Günther, Cat., II, 465.

60. Lactarius lactarius (Bloch & Schneider). *Bog-snag-taen.*

Three fine specimens from San Fabian (no. 3274, 3754, and 3755; length 6.25 to 9.2 in.).

Head 3 in length; depth 2.8; eye 3.85 in head; snout 4.5; maxillary 2.1, its distal end under posterior margin of pupil; base of anal fin 2.75 in length.

Scomber lactarius Bloch & Schneider, Syst. Ichth., 31, 1801, Tranquebar.
Lactarius delicatulus, Günther, Cat., II, 507.

61. Caranx boops Cuvier & Valenciennes. *Atolay.*

Nine specimens from Bacon (no. 3724, 3807, 4053, 4054, 4084, 4085, 4086, 4102, and 4103; length 7 to 8.25 in.).

Head 3.45 in length; depth 3.1; plates of lateral line 44, the line strongly bent, becoming straight under the posterior third of first dorsal, the plates very large; eye 2.75 in head; adipose eyelid well developed; maxillary 2.1 in head.

In this species the ventrals fall far short of anal spines, the origin of the spines being midway between origin of ventrals and base of ninth anal ray; under jaw strongly projecting.

Caranx boops Cuvier & Valenciennes, Hist. Nat. Poiss., IX, 35 (46), Amboyna; Günther, Cat., II, 431; Day, Fishes India, 218, pl. XLIX, fig. 2.

62. Caranx freeri Evermann & Seale, new species. *Mataan.*

Head 3.1 in length; depth 3.2; eye 2.85 in head; interorbital 3.55; dorsal VIII—I, 23; anal II—I, 20; lateral line of 25 scales and 47 plates; a broad adipose eyelid.

Body oblong, moderately compressed; depth of caudal peduncle 6.1 in head, its depth less than its width; profile of head from above opercle to snout almost a straight line placed at angle of 35 degrees; mouth large, the lower jaw scarcely projecting; length of maxillary 2.1 in head, its distal end under middle of pupil, the posterior margin concave; mandible 1.75 in head; minute teeth on jaws, vomer, palatines, and tongue, those of jaws in single series; gillrakers long and slim, 24 on lower limb, the longest 5.9 in head; opercle and preopercle entire; body entirely scaled; breast scaled; plates of lateral line very strong, their greatest diameter 4.5 in head; the lateral line with a low curve anteriorly, becoming straight under the posterior dorsal spines, the curved portion 3.2 in straight; scales of the arrow-shaped area in front of dorsal very minute; about 6 rows on cheek; origin of spinous dorsal in vertical line with axil of ventrals, the longest spine 2 in head, longest ray of soft dorsal 2.5; origin of anal under second soft dorsal ray, being midway between base of caudal and posterior margin of orbit, its longest ray 2.55 in head; origin of anterior anal spine midway between origin of ventral and base of seventh anal ray; first anal spine 6.5 in head; ventrals midway between origin of anal and posterior end

of maxillary, their length 2 in head, their tips reaching first anal spine; pectoral 1.1 in head, the tip reaching origin of anal; caudal deeply forked, its length 1.1 in head.

Color in spirits, yellowish white, a tint of blue above; tip of snout and tip of under jaw dusky; no distinct opercular spot, but posterior margin of opercles with some slight shading of dusky; dorsals slightly tinted with dusky, most distinct on margin of soft dorsal; scarcely a trace of dusky on tip of caudal; pectorals, ventrals, and anal unmarked.

This species is near *C. boops*, of which we have many specimens. It may be at once separated, however, by the more anterior location of the anal spines, the less projecting under jaw, greater length of head, and greater width of the interorbital space.

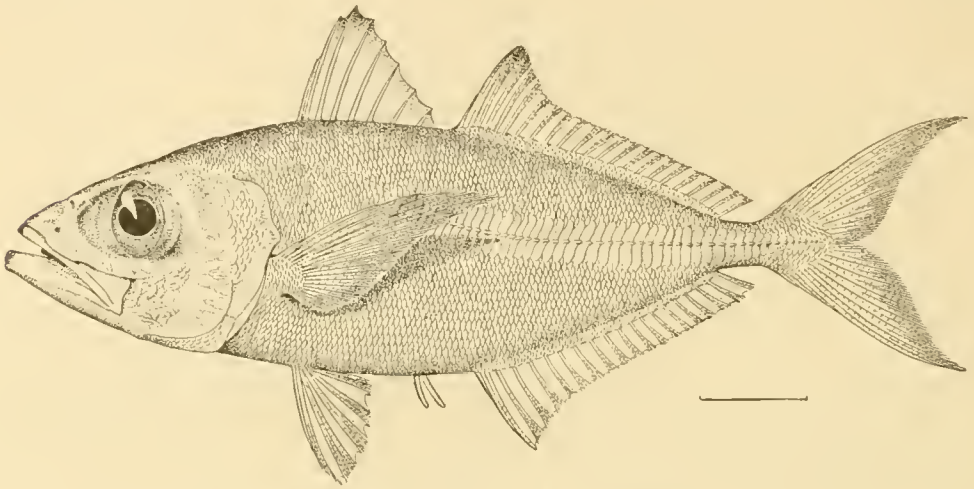

FIG. 4.—*Caranx freeri* Evermann & Seale, new species. Type.

One specimen (no. 3324, type, no., 55913 U. S. National Museum; 9.1 in. long), from San Fabian; collector, Mr. C. L. Hall.

We take pleasure in naming this species for Dr. Paul C. Freer, who, as director of the Philippine Bureau of Science, is doing so much to advance our knowledge of the natural resources of the Philippine Islands.

63. Caranx cynodon Bleeker.

One fine specimen from Bacon (?) (no. 4165; length 13 in.).

Head 3.4 in length; depth 2.9; eye 3.85 in head; snout 3.75; pectoral long and falcate, 2.75 in length; maxillary 2 in head, its distal end on line with posterior margin of eye.

Caranx cynodon Bleeker, Nat. Tijds. Ned. Ind., I, 362, 1850, Batavia; Günther, Cat., II, 447.

64. Caranx affinis Rüppell.

Two specimens from Bulan (no. 3981 and 3897; length 5 and 5.5 in.). Differing from Hawaiian specimens apparently only in the somewhat larger black opercular spot.

Caranx affinis, Rüppell, Neue Wirb., Fische, 49, pl. 14, fig. 1.

65. Caranx speciosus (Forskål).

One specimen from Bulan (no. 3638; length 6.5 in.).

Scomber speciosus Forskål, Descr. Anim., 54, 1775, Red Sea.
Caranx speciosus, Günther, Cat., II, 444.

66. Caranx ophthalmotænia (Bleeker).

Four specimens from Bulan (no. 3907 to 3910; length 3 to 4.5 in.). Dorsal VIII, 27; anal II—I, 23; depth 2; head 3.05; anterior dorsal and anal rays elongate; a brown band from base of mandible upward and backward thru eye to nuchal region; ventrals dusky.

Carangoides ophtholmotænia Bleeker, Nat. Tijds. Ned. Ind., III, 270, 1852, Amboyna; Günther, Cat., II, 451.

67. Caranx sexfasciatus Quoy & Gaimard. *Talatitogan*

Nine specimens from San Fabian (no. 3325 to 3333; length 3.5 to 4 in.). Head 3.1 in length; depth 2.5, eye 3 in head; snout 1.2; pectoral 3.3; maxillary 2.1, its distal end scarcely reaching posterior margin of eye; tip of dorsal black. *Carangus rhabdotus* Jenkins, from Honolulu, closely resembles this species, but differs from it in the heavier body, smaller eye, and the broader cross-bands.

Caranx sexfasciatus Quoy & Gaimard, Voy. Uranie, 358, pl. 65, fig. 4, 1824, Papous Islands.

68. Caranx armatus (Forskål). *Buansang-sapsi; Amaaligan.*

Sixteen specimens from San Fabian (no. 3498, 3446, 4940, and 4941; length 3.2 to 6 in.). No. 4032, length 3 inches, from Bulan, is also placed with this species, although it is slightly deeper and seems to differ in a slight degree.

Scæna armata Forskål, Descr. Anim., 53, 1775, Red Sea.
Caranx armatus, Günther, Cat., II, 453.

69. Caranx kalla Cuvier & Valenciennes.

One specimen from Bulan (no. 3767; length 3 in.). Lateral line becoming straight under about the sixth dorsal ray, which readily distinguishes this species from *C. djeddaba*, to which it is closely related.

Caranx kalla Cuvier & Valenciennes, Hist. Nat. Poiss., IX, 37 (490, 1831, Pondicherry; Day, Fishes India, 219, pl. XLIX, fig. 5.
Caranx calla, Günther, Cat., II, 433.

70. Caranx djeddaba (Forskål).

One small specimen from "Philippines" (no. 3782; length 3.5 in.).

Head 3.25 in length; depth 2.75; eye 3.2 in head; snout 4; maxillary 3; mandible 2.1; interorbital 3.75; dorsal VIII, 25; anal I, 22; scutes 54, 37 in curved portion; lateral line becoming straight under the first dorsal ray.

Scomber djeddaba Forskål, Descr. Anim., 1775, Red Sea.
Caranx djeddaba, Günther, Cat., II, 432; Day, Fishes India, 218, pl. XLIX, fig. 3.

71. Caranx brevis (Bleeker).

Three specimens from "Philippines" (no. 3888; length 3 to 3.2 in.).

Head 3.5 in length; depth 2.4; eye 3 in head; dorsal VIII, 25; anal II—I, 19; lateral line 34+46.

Teeth in jaws, vomer and palatines; no canines; curved portion of lateral line 1.95 in straight, the line becoming straight under anterior dorsal rays; a distinct opercular spot; breast scaled.

Selar brevis Bleeker, Nat. Tijds. Ned. Ind., I, 1850, 361, Batavia.
Caranx brevis, Günther, Cat., II, 435.

72. Megalaspis cordyla (Linnæus). *Bucutut.*

Three fine specimens from Bulan (no. 4155 to 4157; length 14 to 15.5 in.) and 3 from Jolo (no. 4111 to 4113; length 8.5 to 9 in.).

Scomber cordyla Linnæus, Syst. Nat., ed. X, 298, 1758, America.
Scomber rottleri Bloch, Ichth., X, 39, 346, 1797.
Caranx rottleri, Günther, Cat., II, 424.
Megalaspis rottleri, Bleeker, Makreelachtige Visschen, 49, Verh. Bat. Gen., XXIV (Batavia).

73. Citula halli Evermann & Seale, new species. *Pampanon.*

Head 3 in length; depth 1.5; eye 3.2 in head; dorsal IV—I, 40; anal II, 38; 76 scales in lateral line, 35 of which are in straight portion, and scarcely armed; snout 3.5; maxillary 3, its distal end on line with anterior margin of eye.

Body elevated, compressed; anterior profile rounded; caudal peduncle narrow, 5.5 in head; body, including breast, covered with deciduous scales, which are of small size on thorax; lateral line almost straight, the curve being very long and low, the greatest depth of curve 7 in its length, the straight portion of line 2.5 in curved part.

Depth of head much greater than its length; jaws equal; teeth very fine, sharp, in a single series in each jaw; no teeth on vomer, palatines or tongue; opercle and preopercle entire; gillrakers sharp, 13 on lower limb, the longest equal to one-half diameter of eye.

Spinous dorsal of 4 minute spines, connected only at base; anterior rays of soft dorsal and anal greatly elongate, the longest dorsal ray 2 in length; longest anal ray 2.25; caudal deeply forked, 3.5; pectoral 3.5; ventrals 4, their tips extending to base of anal; vertical fins without scaly sheath.

Color in spirits, yellowish, with 5 vertical brown bands of greater width than interspaces, the anterior one forming a distinct ocular band from spinous dorsal through eye to ventrals, the second from anterior of soft dorsal to belly, the third from fifth to fourteenth dorsal rays to anterior of anal; fourth from posterior

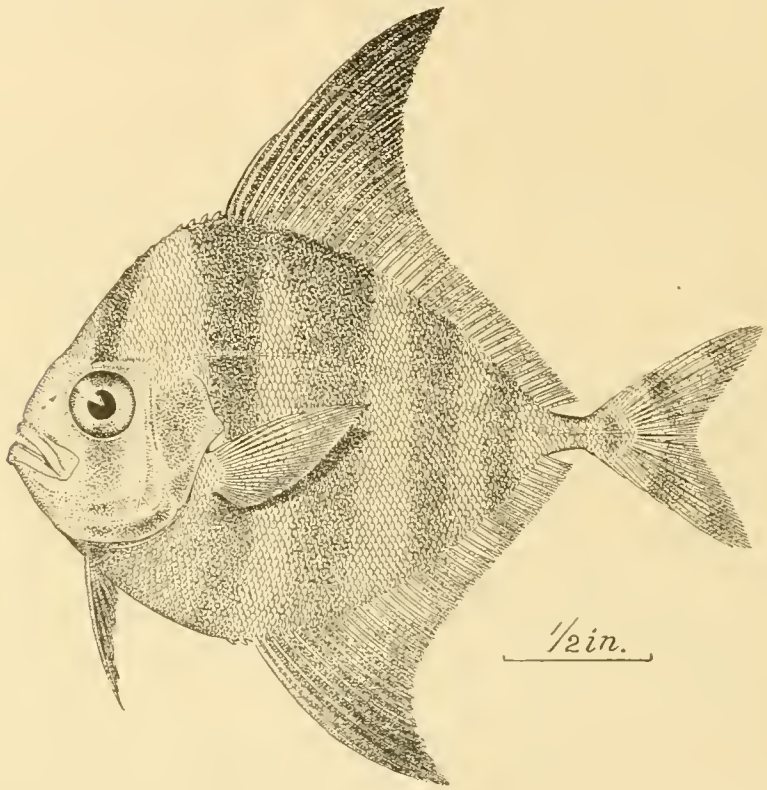

FIG. 5.—*Citula halli* Evermann & Seale, new species. Type.

third of dorsal to middle of anal; the fifth near posterior of dorsal and anal; two oblique bands on each caudal lobe; anterior half of dorsal and anal black; ventrals black; pectoral yellowish; opercles dusky; belly with bluish wash.

One specimen, the type, no. 55914 U. S. National Museum (original no. 4029), 2.5 inches long, from San Fabian.

Easily distinguished from *Alectis ciliaris*, to which it bears a superficial resemblance, by the low curve of the lateral line. Named for Mr. C. L. Hall, who collected at San Fabian many of the specimens on which this report is based.

74. Trachinotus baillonii (Lacépède). *Bitilla.*

One specimen from Zamboanga (no. 3761; length 8.75 in.).

Head 3.8 in length; depth 2.3; eye 3.1 in head; snout 4.1; dorsal, anal and caudal lobes much produced, all blackish; 4 small round black spots on lateral line on middle of side.

Cæsiomorus baillonii Lacépède, Hist. Nat. Poiss., III, 93, pl. 3, fig. 1, Indian Ocean.
Trachynotus baillonii, Günther, Cat., II, 484.

Family EQUULIDÆ.

75. Leiognathus virgatus Fowler.

Two specimens from Bulan (no. 3916; length 2.5 and 2.75 in.).

Leiognathus virgatus Fowler, Journ. Ac. Nat. Sci. Phila., 2d ser., XII, 1904 (June 10), 515, pl. XV, fig. 4, Pedang, Sumatra.

76. Leiognathus dussumieri (Cuvier & Valenciennes). *Malauray.*

Two specimens from San Fabian (no. 3210 and 3212; length 6 and 6.2 in.).

Head 3.2 in length; depth 1.9; eye 3.1 in head; snout 3.1; spine-shaped crest on nuchal region not reaching halfway to base of first dorsal spine.

Equula dussumieri Cuvier & Valenciennes, Hist. Nat. Poiss., X, 50 (77), pl. 283, 1835, Coromandel; Günther, Cat., II, 500.

77. Leiognathus splendens (Cuvier). *Masangui*

Two specimens from San Fabian (no. 3955 and 3959; length 2.5 and 3.75 in.), one from "Philippines" (no local label, No. 3765; length 2.75 in.), and 3 from Bacon (no. 4030; length 2.5 to 2.75 in.).

Breast scaled; supraorbital serrate; lateral line not so strongly arched as in *L. dentulus*, the anterior part slightly concave; tip of dorsal black.

Equula splendens Cuvier, Règne Anim., II, 212, 1829, Indies; Günther, Cat., II, 501.

78. Leiognathus stercorarius Evermann & Seale, new species.

Head 3.7 in length; depth 3; eye 3 in head; snout 3; interorbital 3; dorsal VIII, 17; anal III, 14; scales 57.

Body oblong, moderately compressed, the upper and lower profiles almost evenly curved; jaws equal; depth of caudal peduncle 4.9 in head; entire body covered with thin deciduous scales; cheek and breast scaled; lateral line complete, with a long low curve from caudal peduncle to head; mouth very protractile; the groove for the processes of the maxillary extending to a line with posterior margin of eye, the length of the bony spine-shaped crest extending back from the groove 2.6 in head; upper jaw heavy; minute teeth

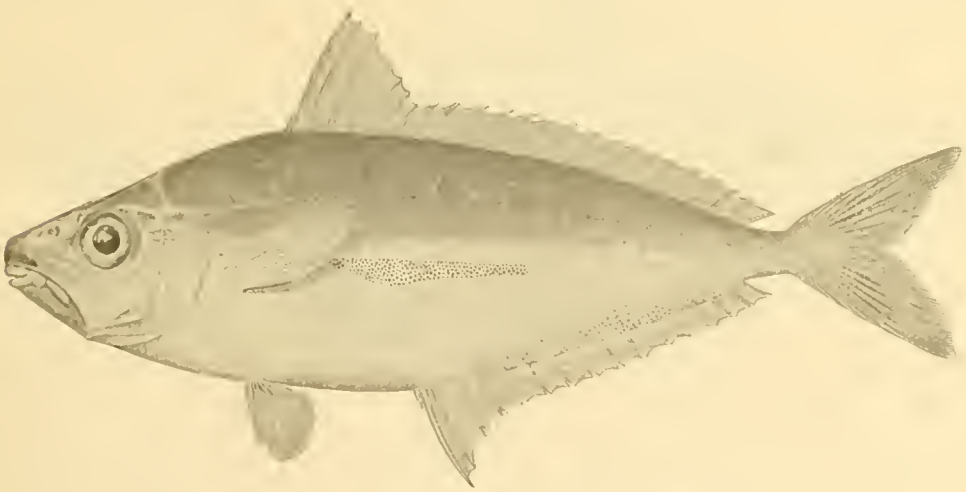

FIG. 6.—*Leiognathus stercorarius* Evermann & Seale, new species. Type.

in jaws, none on vomer, palatines or tongue; no canines; twelve gillrakers on lower limb, the longest about 2 in pupil; maxillary ending on a line with anterior margin of eye, scarcely one-half exposed; mandible 2 in head, at angle of 30°; width of preorbital 1.85 in snout; lower limb of preopercle denticulate on its inferior border; opercle entire; eye with slight adipose eyelid.

Origin of dorsal slightly posterior to origin of ventrals, longest dorsal spine 1.75 in head, about one-half depth of body (in another specimen—a cotype—this spine measures 1.4 in head and is greater than one-half depth of body), the first dorsal spine minute, the second longest, the dorsal continuous, none of the spines or

rays elongate; anal similar to dorsal but shorter; the first anal spine midway between tip of snout and base of caudal; the longest spine 2 in head, none of the anal spines or rays elongate; vertical fins without scales but with deep sheaths; pectoral 1.7 in head; ventrals 2.25 in head, their origin midway between origin of anal and posterior end of mandible; caudal deeply forked.

Color in spirits, light brown above, silvery below, with a slight wash of yellowish; a peculiar lanceolate area on middle of side shaded with fine black dots, and having the appearance of an abrasion; fine brownish dots just above anal fin; upper half of body with numerous vermiculate brownish lines; a black line on base of dorsal; upper lip dusky; dusky dots in axil of pectoral; anterior spines of dorsal and anal with some fine brown dots, most distinct on anal, otherwise fins unmarked.

This species is related to *L. oblongus* but differs among other things in having scales on chest. It is more elongate than *L. rivulatus* and *L. lineatus*, with which we have compared it.

Seven specimens from Bulan, length 3.75 to 4 in. Type, no. 55906, U. S. National Museum (field no. 3591), length 4.75 in., from Bulan, Sorsogon, P. I. Of the cotypes, all from Bulan, one (field no. 3590) is no. 20004 Stanford Univ. Mus.; another (field no. 3588) is no. 1537 U. S. Bureau of Fisheries; another (field no. 3587) is in the museum at Manila; another (field no. 3589) is in the U. S. National Museum; another (field no. 3592) is in Philadelphia Academy of Natural Sciences; another (field no. 3593) is in the Indiana University Museum. (*Stercorarius* of or pertaining to dung; from the fly-specks on the side.)

79. Leiognathus edwardsi Evermann & Seale, new species. *Patuan.*

Head 3.6 in length; depth 2.6; eye 2.75 in head; snout 2.9; interorbital 3.1; dorsal VIII, 16; anal III, 13; scales about 70, about 48 pores.

Body oblong-ovate, the dorsal and ventral outlines about equally curved and gently arched; head moderate, pointed, snout pointed; mouth small, very protractile, the lower jaw included; maxillary short, its exposed tip pointed, scarcely reaching vertical of orbit; teeth in jaws fine, villiform; vomer and palatines

FIG. 7.—*Leiognathus edwardsi* Evermann & Seale, new species. Type.

apparently toothless; eye large, in middle of head; lower edge of preopercle entire; cheek deep, greater than interorbital width; a broad, blunt supraocular spine over anterior part of eye; interocular space broadest anteriorly, its length nearly twice its greatest width; occipital ridge greater than diameter of orbit and slightly greater than distance from its tip to origin of dorsal fin; origin of dorsal fin posterior to insertion of ventrals; first dorsal spine produced and filamentous (the tip broken off), its length probably about 1.5 in length of body; soft dorsal low; origin of anal under about sixth dorsal spine; first spine greatly produced and filamentous, its length about 1.8 in depth; anal rays short; both dorsal and anal fins folding into a

shallow groove; pectoral short, its length about 1.5 in head; ventrals short, their length slightly greater than diameter of orbit, the distance from their tips to base of first anal spine 1.5 in their length; caudal broadly forked, the lobes about 1.25 in head; scales small, thin, and deciduous; lateral line in a low regular arch from upper edge of gill-opening to base of caudal; breast naked.

Color in spirits, dirty olivaceous yellow, back more or less marbled and vermiculated with brownish; a dark line along base of dorsal fin; cheek and lower half of side finely punctulate with dark dots; tip of snout black; axil of pectoral dusky; fins otherwise pure yellowish.

This species is based on a single specimen 5 inches long, field no. 3876 (10778), from San Fabian, Pangasinan. Type, no. 55904, U. S. National Museum. It is apparently related to Günther's *Equula lineiscus*, from which it differs, however, in the smooth preopercle, the presence of a supraocular spine, and the less development of the anterior dorsal spine. We take pleasure in naming this species for Brig. Gen. Clarence R. Edwards, U. S. Army, Chief of the Bureau of Insular Affairs, U. S. War Department.

80. Leiognathus fasciatus (Lacépède).

Four specimens from San Fabian (no. 3211 and 3956 to 3958; length 3.25 to 6.2 in.).

Body very deep, back strongly arched. Head 3.18 in length; depth 2; eye 3 in head; snout 2.95; two strong supraocular spines; lower limb of preopercle serrate; scales very small, breast naked; lateral line complete, 60; body with about 18 narrow black vertical bars.

Clupea fasciata Lacépède, Hist. Nat. Poiss., v, 400, 1803.
Equula fasciata, Günther, Cat., II, 498, 1859.

81. Leiognathus edentula (Bloch).

Four specimens from San Fabian (no. 3950 to 3953; length 2.75 to 3.5 in.).

Body very deep, the back much arched; breast naked; lateral line strongly arched, the anterior part at first slightly concave.

Head 3 in length; depth 1.7; eye 3 in head; snout 2.75; nuchal crest almost reaching base of first dorsal spine, which is 2.5 in depth; teeth not evident; tip of dorsal fin not black.

Scomber edentulus Bloch, ichth., pl. CCCCXXVIII, 1785.
Equula edentula, Günther, Cat., II, 498; Day, Fishes India, 238, pl. LII, fig. 1.

82. Gazza tapeinosoma Bleeker.

Five specimens from the Philippines (no local label given; no. 3779, 3780, 3781, 3783, and 3784; length 3.75 to 5.2 in.), and 8 from Bulan (no. 3489 to 3496; length 4.5 to 5 in.).

Gazza tapeinosoma Bleeker, Nat. Tijds. Ned. Ind., IV, 260, 1853, Batavia.
Gazza argentaria, Günther, Cat., II, 506; probably not of Forster.

83. Gazza minuta (Bloch). *Matambo; Buegsang.*

Seven specimens from San Fabian (no. 3947 to 3949 and 3868 to 3871; length 2.75 to 4 in.).

Head 2.9 in length; depth 2; eye 2.75 in head; snout 3.1; scales minute, lateral line complete; breast naked; preopercle serrate.

Scomber minutus Bloch, Ichth., XII, 110, pl. CCCCXXIX, fig. 2, 1797, no locality given
Gazza minuta, Günther, Cat., II, 506.

Family GERRIDÆ.

84. Xystæma punctatum (Cuvier & Valenciennes).

Three specimens from Bulan (no. 3220 to 3223; length 4.75 to 5.2 in.), agreeing well with the figures given by Bleeker and by Day and with Day's description.

Gerres punctatus Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 361 (480) 1830, Pondicherry.
Gerres filamentosus, Günther, Cat., I, 345, and IV, 261; Day, Fishes India, 98, pl. XXV, fig. 3.

85. Xystæma baconensis Evermann & Seale, new species. *Duldul.*

Head 3.25 in length, depth 2.6; eye 3.25 in head; snout 3; lateral line complete; scales about 4–47–8; interorbital 2.8 in head; maxillary 2.5; depth of cheek 3.3; dorsal IX, 10; anal III, 7; pectoral 1.1 in head; ventrals 1.9.

Body moderately elongate, the back rather strongly arched, the profile rising in a regular curve from tip of snout to origin of dorsal fin, thence descending in a broader curve to caudal peduncle; ventral outline less convex; head pointed, the lips thick, jaws subequal, or the lower slightly the shorter; premaxillary strongly protractile; exposed portion of maxillary broad, its greatest width half its length, its posterior edge slightly concave; preopercle entire; interorbital broad; premaxillary groove narrow, completely scaled except a small circular area posteriorly above anterior margin of orbit; caudal peduncle rather deep, its greatest depth greater than diameter of eye, or 3 times its least width. Scales large, thin, and firm; origin of dorsal fin over base of pectoral, the second spine slender, curved, and lengthened, its length greater than half that of head; dorsal rays short; second anal spine shorter and scarcely larger than the third, its length 1.4 in eye; dorsal and anal fins each with a high, scaly sheath; caudal fin thickly covered with fine scales; peritoneum dusky; second interhæmal spine long and slender; posterior end of air-bladder bifid, ending in 2 long slender horns which fit alongside of second interhæmal.

Color in spirits, silvery white, the back and upper part of side showing faint dark lines along the middle of each row of scales parallel with the back; tip of spinous dorsal dark, fins otherwise unmarked. This species is close to *X. kapas*, from which it differs chiefly in having the premaxillary groove scaled, the eye larger, the interorbital space broader, and the second anal spine smaller.

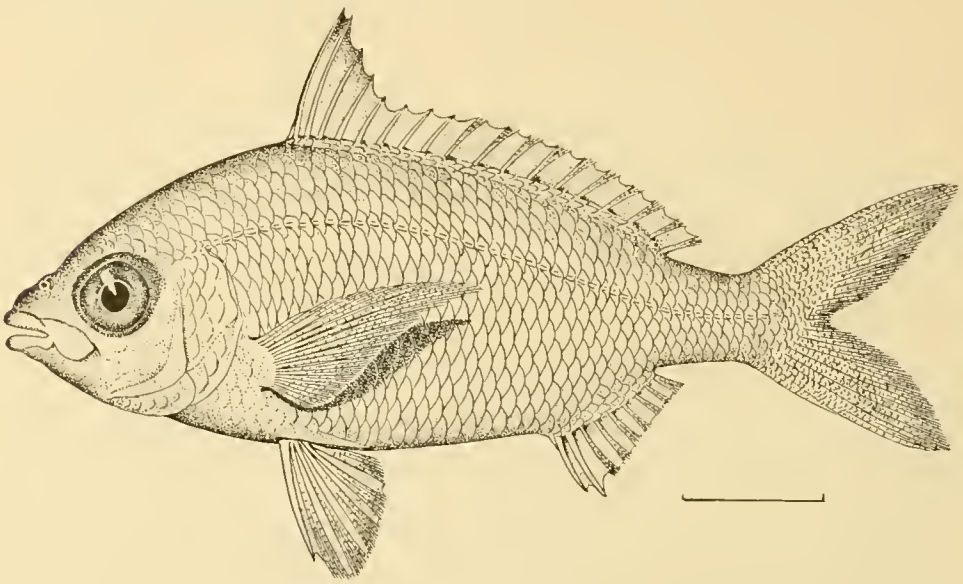

FIG. 8.—*Xystæma baconensis* Evermann & Seale, new species. Type.

This species is represented in our collection by two specimens—one (no. 3416) from Bacon, and the other (no. 3377) from Jolo. Type, no. 55912, U. S. National Museum, a specimen 7 inches long, from Bacon, Sorsogon, P. I. The other, a specimen 5.5 inches long is a cotype, no. 4538, U. S. Bureau of Fisheries.

86. Xystæma kapas (Bleeker). *Duldul.*

We refer to this species one specimen (no. 3376) 5.35 in. long from Jolo, 9 specimens (no. 3417, 3418, 3637 to 3639, and 3822 to 3825, 3.2 to 6.5 in. long) from Bacon, and 2 small examples (no. 3890) from Bulan.

Head 3.2 in length; depth 2.7; eye 3.5 in head; snout 3.2; interorbital 2.9; scales 4–40–9; maxillary groove naked, interorbital width greater than orbit; preopercle not denticulate; base of ventrals midway between tip of snout and origin of anal; longest dorsal spine about 2 in depth of body; second anal spine somewhat stronger but shorter than the third, its length 3.3 in head or 4.25 in depth.

Color in spirits, silvery, tip of spinous dorsal black; body without longitudinal darker lines.

Our specimens agree perfectly with Bleeker's figure of this species, but differ from Günther's description in the shorter second anal spine. They seem to differ from *N. oyena* (Rüppell) in the lower curve of the dorsal outline and the absence of dark lateral lines along the rows of scales.

Gerres kapas Bleeker, Nat. Tijds. Ned. Ind., II, 1851, 482, Batavia.
Diapterus kapas Bleeker, Atlas, VIII, 127, pl. CCCLXI, fig. 3 (East Indies).
Gerres kapas, Günther, Cat., IV, 259.

Family MÆNIDÆ.

87. Emmelichthys leucogrammicus Bleeker

Nine specimens from Bulan (no. 3971; length 2.5 to 3.2 in.), and one from Bacon (no. 3758; length 1.85 in.). These agree well with Bleeker's figure.

Emmelichthys leucogrammicus Bleeker, Nat. Tijds. Ned. Ind., I, 103, 1850, Celebes; Atlas, VII, pl. CCXCIV, fig. 2.
Erythrichthys leucogrammicus, Günther, Cat., I, 396.
Dipterygonotus leucogrammicus Bleeker, Atlas, VIII, 42

Family SCORPIDIDÆ.

88. Monodactylus argenteus (Linnæus).

One specimen from Bulan (no. 3594; length 3.75 in.). Head 2.9 in length; depth 1.2; eye 2.6 in head; snout 5.2. Color in spirits dusky silvery, a black band from nape through eye to lower edge of gill-opening and another across body and base of pectoral just posterior to gill-opening to origin of dorsal and anal and then extending on those fins to tips of produced rays.

Chætodon argenteus Linnæus, Amoen. Acad., IV, 249, 1759.
Psettus argenteus, Günther, Cat., II, 487.

Family APOGONICHTHYIDÆ.

89. Amia frænata (Valenciennes).

One specimen from Bacon (no. 3766; length 3.75 in.). (Not *A. frenatus* of Günther.)

Head 2.5 in length; depth 3.18; snout 4; eye very large, longer than snout, 3.1 in head; side with a well-defined black band about width of pupil, extending through eye and across tip of snout, where it is most distinct; a distinct black spot on caudal peduncle at base of caudal fin; a black bar on base of anal; anterior dorsal spines black.

From *Amia snyderi* this species seems to differ in the larger eye, more slender body, and better defined black caudal spot and lateral band. The two may, however, be identical.

Apogon frænatus Valenciennes, Nouv. Ann. Mus. Hist. Nat., 57, pl. 4, fig. 4, 1832.

90. Amia koilomatodon (Bleeker).

Two fine specimens from Bacon (no. 3509 and 3511; length 4.75 and 5.2 in.). These agree in every respect with specimens from Samoa.

Apogon koilomatodon Bleeker, Nat. Tijds. Ned. Ind., IV, 134, 1853, Ternate.
Amia koilomatodon Bleeker, Atlas, VII, pl. CCCVII, fig. 1; Jordan & Seale, Bull. U. S. Bu. Fish., XXV, 1905 (1906), 240, fig. 34.

91. Amia quadrifasciata (Cuvier & Valenciennes). *Bakutut.*

Twenty-nine specimens from Jolo (no. 3555 to 3583; length 2.5 to 3.5 in.), all showing the indistinct vertical bands, in addition to the 2 distinct longitudinal stripes; no caudal spot, the lower longitudinal stripe extending to tip of caudal.

Apogon quadrifasciatus Cuvier & Valenciennes, Hist. Nat. Poiss., II, 113 (153), 1828, Pondicherry; Günther, Cat., I, 239; Day, Fishes India, 59.
Amia quadrifasciata, Bleeker Atlas, VIII, 88, pl. CCCXXXV, fig. 1.

92. Amia fasciata (Quoy & Gaimard).

Four specimens from Bacon (no. 5752; length 1.25 to 1.5 in.), similar in every respect to a specimen from Samoa. The upper and lower bands converge on the caudal fin, touching or nearly so, the median band near tip of tail.

The type of *Apogon fasciatus* Quoy & Gaimard, came from Guam and the same specimen appears to have been used by Cuvier & Valenciennes as one of the types of their *Apogon novemfasciatus* published five years later. The other specimen in the possession of Cuvier & Valenciennes came from Timor and, according to a recent note from Mr. Vaillant, appears to be the same species.

Apogon fasciatus Quoy & Gaimard, Voy. Uranie, Zool., 344, 1824, **Guam** (type in Paris Mus.).
Apogon novemfasciatus Cuvier & Valenciennes, Hist. Nat. Poiss., II, 114 (154), 1829, in part; **Guam** specimen.
Apogon fasciatus, Day, Fishes India, 60, in part; not of White.

93. Amia chrysopoma (Bleeker).

Two specimens from Bacon (no. 3976 and 3365; length 3.1 and 4 in.).

Head 2.85 in length; depth 2.85; eye 2.75 in head; dorsal VII–I, 9; anal II, 8; scales 2–29–6; posterior limb of preopercle serrate, anterior limb entire; maxillary extending to below middle of eye; gillrakers 20 on lower limb.

These specimens agree with Bleeker's description, except that the color in spirits is slightly different. They are yellowish with 2 very indistinct dusky longitudinal lines, the lower one being on the median line, and easily overlooked; a black caudal spot just above lateral line, 5 pearl-colored spots on opercle; anterior of spinous dorsal dusky; other fins immaculate.

Apogon chrysopomus Bleeker, Nat. Tijds. Ned. Ind., VII, 1854, 239, **Macassar.**
Amia chrysopomus Bleeker, Atlas, VII, 86, and Atlas, VIII, pl. CCCXLIX, fig. 1.
Apogon chrysopomus, Günther Cat., I, 240.

94. Amia hartzfeldi Bleeker.

Nine specimens from Bacon (no. 2899, 4194, 4195, 4196 and 3810 to 3814; length 3.2 to 4 in.).

These seem in every respect similar to specimens from Cavite, and agree entirely with Bleeker's colored plate of this species.

Amia hartzfeldi Bleeker Nat. Tijds. Ned. Ind., III, 254, 1852, **Amboyna.**
Apogon hartzfeldii, Günther, Cat., I, 242.

95. Amia savayensis (Günther).

Six specimens from Bacon (no. 3510, 3880 to 3883 and 3885; length 2.75 to 3.75 in.), all having the dark saddle over caudal peduncle, dark upper and lower margin to caudal, and a more or less distinct dusky line from eye to angle of preopercle; anterior spines of spinous dorsal dusky; anterior rays and tip of soft dorsal dusky; only two specimens show traces of vertical bands seen on some Samoan specimens.

Apogon savayensis Günther, Proc. Zool. Soc. Lond. 1871, 656, **Savaii, Samoa**; Fische der Südsee, 21, pl. 19, fig. B (Samoa; Tonga; Yap; Tahiti).

96. Amia sangiensis (Bleeker).

One specimen from Bulan (no. 3889; length 3 in.). The dorsal formula is VII–I, 9, instead of VI–I, 8 or 9, as given, the first spine being very minute and easily overlooked.

Apogon sangiensis Bleeker, Nat. Tijds. Ned. Ind., XIII, 1857, 375, **Sangi**; Günther, Cat., I, 235 (Sea of Sangi).
Amia sangiensis Bleeker Atlas, VII, 95, pl. CCCXIX, fig. 4.

97. Amia monochrous (Bleeker).

Two specimens in poor condition from Bulan (no. 4015 and 4016; length 3.5 and 3.75 in.).

Apogon monochrous Bleeker, Manado en Macassar, 34, Act. Soc. Sci. Ind. Ned., 1856, **Manado**; Günther, Cat., I, 236.

98. Amia novæ-guineæ (Valenciennes).

Five specimens from Bulan (no. 4007 and 4013; length 2.1 to 2.56).

Apogon novæ-guineæ Valenciennes, Nouv. Ann. Mus. Hist. Nat., 53, pl. 4, 1832, **New Guinea**; Günther, Cat., I, 237.

92. Singular specimens in U.S. Nat. Mus. [illegible]
is not Amia fasciata = novemfasciata but
Amia robusta n. sp.

99. Amia jenkinsi Evermann & Seale, new species.

Head 2.75 in length; depth 2.9; eye 3 in head; snout 4.6; interorbital 4.2; dorsal VII–I, 9; anal II, 8; scales 3–25–5.

Body oblong, moderately compressed; depth of caudal peduncle 2.4 in head; anterior profile from base of dorsal to tip of snout forming a straight line at an angle of about 15°; mouth large; lower jaw the longer; maxillary 2.1 in head, its posterior margin under middle of pupil, the width of distal end equal to pupil; mandible 1.75 in head; minute teeth on jaws, vomer, and palatines in 1 or 2 rows; 16 gillrakers on lower limb, the longest about 7 in head; posterior limb of preopercle finely denticulate, a few scattered denticulations at angle of anterior limb; opercle with an indistinct spine on posterior margin; body entirely covered with large weakly ctenoid scales; lateral line complete; 2 rows of scales on cheek; origin of spinous dorsal midway between tip of snout and posterior axil of soft dorsal, the longest spine 2.1 in head; longest ray of soft dorsal 1.75 in head; origin of anal under middle of soft dorsal, its base 2.25 in head, longest ray 2 in head; origin of

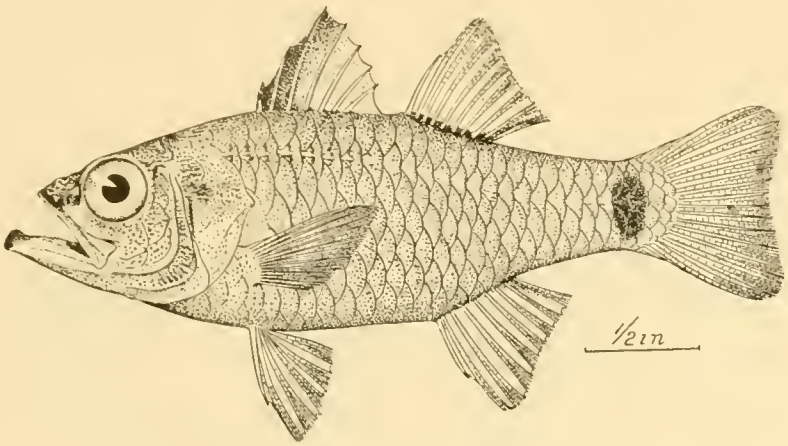

FIG. 9.—*Amia jenkinsi* Evermann & Seale, new species. Type.

ventrals under base of pectoral, their length 1.75 in head; pectoral 1.5 in head; caudal rounded, 1.5 in head.

Color in spirits, dull yellowish, shaded with minute brown punctulations; a large quadrate black spot on middle of base of caudal; a round jet-black spot about size of pupil on each side of nuchal region; a wide distinct black line on side of snout from eye to mouth; tip of lower jaw black; spinous dorsal black; a shading of dusky on base of soft dorsal and anal, otherwise fins all yellowish. One specimen, the type, no. 55907, U. S. National Museum (field no. 4036), length 3.4 in., from Bulan, Sorsogon, P. I.

Named for Dr. O. P. Jenkins, of Stanford University.

100. Amia endekatænia (Bleeker).

Three specimens from Bacon (no. 3839 and 3818; length 2.25 to 3.5 in.).

A. endekatænia is undoubtedly a species distinct from *A. fasciata*, easily distinguished by the bluntly rounded profile of the head, the short snout, and the more rounded preopercle. Gillrakers 11 on lower limb (including nodules); only posterior limb of preopercle serrated. Our specimens are faded, but the 4 dusky longitudinal lines are quite perceptible in the large specimen; also the rather diffused dusky caudal spot. The small specimens have the spinous dorsal tipped with dusky and show indistinct traces of dusky vertical lines, as in *A. quadrifasciata;* the large specimen has ventrals tipped with dusky.

Apogon endekatænia Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 449, **Banka.**
Amia endekatænia Bleeker Atlas, VII, 85, pl. CCCX, fig. 2.

101. Amia margaritophora (Bleeker).

One specimen from Bacon (no. 4197; length 1.75 in.).

Head 2.75 in length; depth 2.9; eye 3 in head; dorsal VI 1, 9; anal II, 8; scales 3-25-7; teeth on palatines and vomer.

Apogon margaritophorus Bleeker, Nat. Tijds. Ned. Ind., VII, 1854, 363, **Batjan.**
Amia margaritophorus Bleeker, Atlas, VII, 91, pl. CCCI, fig. 4; Günther, Cat., 1, 234.

102. Apogonichthys mentalis Evermann & Seale, new species.

Head 2.75 in length; depth 3.4; eye 3.1 in head; snout 4; interorbital equal to snout; dorsal VI-I, 10; anal II, 12 (the small anterior anal spine broken off in type); scales probably about 28, deciduous.

Body oblong, moderately compressed; depth of caudal peduncle 3.2 in head; mouth large, the lower jaw the longer; maxillary 2.5 in head, its distal end under anterior margin of pupil; mandible 2.15 in head; minute teeth in jaws, none on vomer or palatines; 20 gillrakers on lower limb, the longest equal to pupil; no denticulations on preopercle; opercle with a single point; entire body covered with thin, very deciduous cycloid scales; lateral line probably complete, apparently a single row of scales on cheek; origin of spinous dorsal midway between tip of snout and axil of soft dorsal; longest dorsal spine 2.5 in head; base of soft dorsal

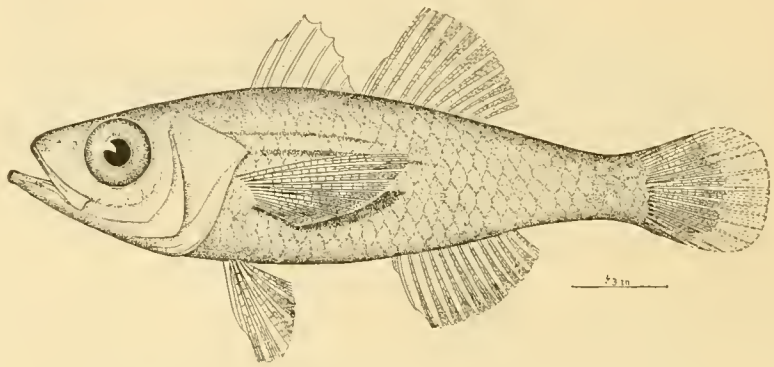

FIG. 10.—*Apogonichthys mentolis* Evermann & Seale, new species. Type.

1.75 in head, its longest ray 2 in head; origin of anal under anterior third of soft dorsal, its longest ray 2.75 in head, its base 1.75; ventrals below base of pectoral, their length 2.1 in head; pectoral 1.3, the tip reaching beyond anal spines; caudal rounded.

Color in spirits, yellowish white; 2 black longitudinal lines separated by pale yellow on side to below posterior end of soft dorsal; some dark dots on opercle, a shading of dusky at tip of snout and on tip of lower jaw; fins all uniform yellowish white.

Two specimens, the type, no. 55905, U. S. National Museum (B. F. no. 3772, field no. 10696), a female full of mature eggs, and cotype no. 20002, Stanford University, each about 2.5 inches long, from Bacon, Sorsogon, P. I.; collector Charles J. Pierson.

103. Archamia macropteroides (Bleeker).

Thirty-eight specimens from Bacon (no. 3896, 3867, 3991, and 3884; length about 3 in.).

Head 2.75 in length; depth 2.45; eye 3 in head; snout 5.5; dorsal VI-I, 10; anal II, 17; scales 4-27-9.

Color in spirits, dirty yellowish, the body and head thickly punctulate with blackish; a large black spot at base of caudal and a similar but smaller one on shoulder, these both very distinct.

Our specimens differ from those from Samoa, which Jordan & Seale identified with *A. lineolata* (Ehrenberg) in having the body deeper, the eye larger, the head blunter, and the shoulder spot always distinct. *A. bleekeri* differs from the present species in the shape of the caudal spot and the more anterior position of the shoulder spot.

Apogon macropteroides Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 724, **Lepar Island, Banka;** Günther, Cat., 1, 245.

104. Archamia bleekeri (Günther). *Masanguí*

Forty-eight specimens from Bacon (no. 3279 to 3306 and 3678; length 1.5 to 3 in.), and 2 from San Fabian (no. 3815; length 1.25 in.).

These each have 16 anal rays, a round black spot at base of caudal, its outline sharply defined, a large black spot at anterior end of lateral line, touching upper edge of opercle, and a dusky line from eye to subopercle. Resembling *A. macropteroides* but readily distinguished by the form and position of the caudal and humeral spots.

Among our specimens are both males and females. Nearly mature eggs were found in the ovaries of some of the females, and a mass of mature eggs was discovered in the mouth of a male. It has long been asserted that the male of certain species of this family carries the eggs in his mouth during incubation. Measurements of 10 of these eggs gave an average diameter of 0.51 mm.

Apogon bleekeri Günther, Cat., 1, 245, 1859, Batavia; Padang; Amboyna
Apogon macropterus, Bleeker, Nat. Tijds. Ned. Ind., II, 168, 1851, and Atlas, VIII, pl. CCCXLVI, fig. 2.

Family AMBASSIDÆ.

105. Ambassis urotænia Bleeker.

One hundred and three specimens from Bacon (no. 3408 and 3621; length 1.75 to 3 in.).

Head 2.75 in length; depth 2.75; eye 3.1 in head; snout 4.75; second dorsal spine 4 in length; dorsal VII–I, 9; anal III, 10; scales 1–28–6, 2 rows on cheek.

Ambassis urotænia Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 257, Amboyna; Atlas, VIII, 135, pl. CCCXLIV, fig. 2, and pl. CCCLI, fig. 1; Günther, Cat., I, 224.

106. Ambassis lungi (Jordan & Seale).

Four specimens from Bacon (no. 3834 and 4192; length 1 to 3 in.).

This species is easily distinguished by the single row of scales on cheek, the broken lateral line, and the color of the fins and back.

Ambassis urotænia, Day, Fishes India, pl. XV, fig. 8; not of Bleeker.
Priopis lungi Jordan & Seale, Bull. Bu. Fisheries, XXVI, 1906, 18, fig. 6, Cavite, Luzon.

Family PEMPHERIDÆ.

107. Pempheris vanicolensis Cuvier & Valenciennes.

Eight specimens from Bacon (no. 3213 to 3218, 3542 and 3762; length 3.75 to 6 in.), and 3 young from Bulan (no. 3817).

Head 3.4 in length; depth 2.2; eye 2.6 in head; snout 6.5; anal III, 43.

No black spot on base of pectoral; anterior dorsal rays black-tipped; edge of anal black. These characters distinguish the species.

Pempheris vanicolensis Cuvier & Valenciennes, Hist. Nat. Poiss., VII, 227 (305), 1831, Vanicolo.

Family SERRANIDÆ.

108. Epinephelus merra Bloch.

Four specimens from Bacon (no. 3630, 3631, 3632, and 4082; length 4 to 6.5 in.).

Epinephelus merra Bloch, Ichth., VII, 17, pl. CCCXXI, 1797; Boulenger, Cat., I, 241, 1895.

109. Epinephelus tauvina (Forskål).

One specimen from Bacon (no. 3633; length 1.4 in.).

Perca tauvina Forskål, Descr. Anim., 39, 1775, Red Sea.
Epinephelus tauvina, Boulenger, Cat., I, 244.

110. Epinephelus fasciatus (Forskål).

One fine specimen from Bacon (no. 4040; length 10.75 in.).

Perca fasciata Forskål, Descr. Anim., 40, 1775, Red Sea.
Epinephelus fasciatus, Boulenger, Cat., I, 238.

111. Epinephelus maculatus (Bloch).

Two fine specimens from San Fabian (no. 3224 and 3225; length 4.5 and 8.5 in.).

Holocentrus maculatus Bloch, Ichth., IV, 96, pl. CCXLII, fig. 3, 1797.
Epinephelus maculatus, Boulenger, Cat., I, 211.

112. Cephalopholis pachycentron (Cuvier & Valenciennes).

Three specimens from Bacon (no. 3385, 3386, and 3850; length 5.5 to 5.75 in.).

Dorsal IX, 15; anal III, 8; scales 80. The specimens are without light margin to fins and the ventrals extend to vent; otherwise they agree with the descriptions.

Serranus pachycentron Cuvier & Valenciennes, Hist. Nat. Poiss., II, 219 (295), 1828 (type no. 7432, Paris Museum).
Epinephelus pachycentrum, Boulenger, Cat., I, 178

113. Cephalopholis kendalli Evermann & Seale, new species.

Head 2.66 in length; depth 2.85; eye 6.3 in head; snout 4.75; interorbital 7.5; maxillary 2.1, its distal end reaching beyond orbit, the distal width of maxillary 1.1 in orbit; dorsal IX, 16; anal III, 8; scales about 20–80–22, 45 pores.

Body oblong, moderately compressed; depth of caudal peduncle 3 in head; anterior profile evenly curved from origin of dorsal to snout, slightly concave before and behind eye; mouth large, lower jaw slightly pro-

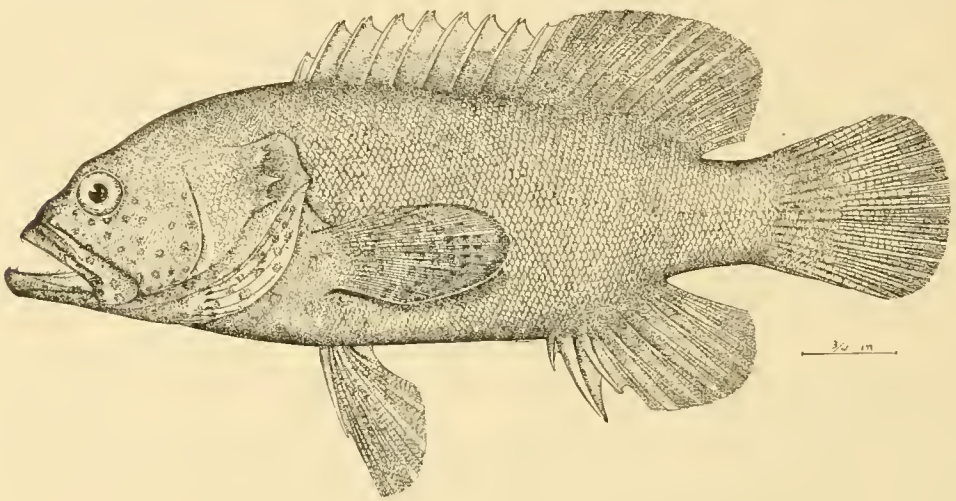

FIG. 11.—*Cephalopholis kendalli* Evermann & Seale, new species. Type

jecting; several bands of sharp teeth in each jaw with a single curved canine on each side anteriorly, the inner teeth largest and depressible; teeth on vomer and palatines; gillrakers sharp, their inner surface spinulose, 9 developed on lower limb, the longest 2 in orbit; margin of preopercle rounded, finely denticulate, the denticulations scarcely enlarged at angle; opercle with 3 distinct spines, the upper one more distant from center one and slightly more posterior than lower; opercular membrane very obtusely rounded, the upper margin concave.

Body covered with fine etenoid scales; head and nuchal region with cycloid scales; maxillary scaled, the scales on nuchal region and top of head very fine, about 80 in series in front of dorsal; origin of dorsal above base of pectoral, the spines increasing in length posteriorly, the second spine 1.35 in ninth, the first 2.5 in ninth; rays of soft dorsal much longer than spines, the longest ray 2.5 in head; second anal spine longest, 3 in head; longest anal ray 2 in head; origin of anal nearer to base of caudal than to origin of ventrals; pectoral 1.5 in head, tip extending slightly posterior to vent, but not reaching a line with origin of anal fin; ventrals 2 in head, their origin midway between tip of snout and base of sixth anal ray, their tips reaching to, but not beyond, vent; caudal rounded, 1.75 in head.

Color in spirits, dark brown; large scattered blue spots with black margins on head, thorax, belly, and fins except spinous dorsal, which is dusky; no bars or spots on other portions of body, the spots on fins indistinct, except on pectoral, where they form rows; pectoral with a slight wash of yellowish with a black margin-otherwise the fins all blackish without a trace of lighter margins.

This species is related to *C. guttatus*, from which it differs in the larger scales, longer ventrals, smaller eye, and in coloration.

One fine specimen from Bacon, no. 55911, U. S. National Museum (B. F. no. 3722), length 7.5 in.; collector Charles J. Pierson.

We take pleasure in naming this species for our associate, Dr. Wm. C. Kendall, of the U. S. Bureau of Fisheries.

114. Cephalopholis bœnack (Bloch).

One specimen from Bacon (no. 3856; length 5 in.).

Bodianus bœnack Bloch, Ichth., IV, 31, pl. CCXXVI, 1797.
Epinephelus bœnack, Boulenger, Cat., I, 189.

115. Cephalopholis obtusauris Evermann & Seale, new species.

Head 2.55 in length; depth 2.8; eye 5.3 in head; snout 3.9; interorbital 1.75 in snout; dorsal IX, 15; anal III, 9; scales about 12–95–26, with 48 pores in lateral line.

Body oblong, moderately compressed; depth of caudal peduncle 2.95 in head; body and head covered with minute scales with rough margins; lateral line with a distinct curve above pectoral; head large; mouth very large; maxillary 2 in head, its distal end under middle of eye, its width 1.3 in eye; mandible 1.85; small

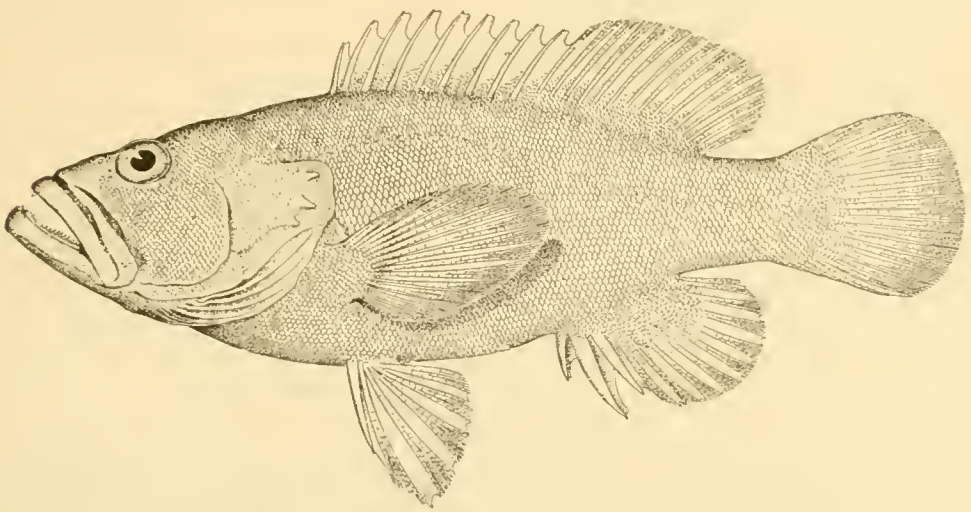

FIG. 12.—*Cephalopholis obtusauris* Evermann & Seale, new species. Type.

teeth on jaws, vomer, and palatines, outer series on upper jaw slightly enlarged, with 2 canines on each side anteriorly, and with some enlarged depressible teeth posterior to them; a canine on each side of symphysis of lower jaw, with a row of larger depressible teeth among the small ones on sides; 14 gillrakers on lower limb (counting knobs), the longest equal to pupil; preopercle slightly rough; opercle with 3 spines, the lower one a little anterior to the others, the upper one more removed from center one; opercular flap very obtusely rounded, not ending in a sharp point; origin of dorsal fin on a line with axil of pectoral, and midway between tip of snout and base of eighth dorsal ray; longest dorsal spine 3 in head, the anterior spine less than diameter of eye; longest dorsal ray 2.3 in head; origin of anal slightly nearer base of ventral than to base of caudal, and on a line with base of third dorsal ray; base of anal 2.1 in head, its longest ray 2 in head, the second anal spine the strongest and slightly the longest; ventrals 1.75 in head, their tips reaching a little past vent, but not to base of anal fin; pectoral 1.3 in head, the tip on a line with origin of anal fin; caudal rounded, 1.75 in head.

Color in spirits, uniform yellowish, with slight wash of dull brown, evidently uniform red in life; fins unmarked.

Related to *C. aurantius* Cuvier & Valenciennes, but with shorter premaxillary and obtuse flap to opercle, and fewer scales in lateral line.

One specimen, the type, no. 55910, U. S. National Museum (Bureau of Fisheries no. 3541; length 9.15 in.) from Bacon, Sorsogon, P. I.; collector Charles J. Pierson.

116. Cromileptes altivelis (Cuvier & Valenciennes).

One specimen from Bacon (no. 3763; length 3.75 in.).

Color in spirits, yellowish, the spots brown, large, and sparsely placed.

Serranus altivelis Cuvier & Valenciennes, Hist. Nat. Poiss., II, 241 (324), pl. 35, 1828, Java.
Cromileptes altivelis, Bleeker, Atlas, VII, 30, and Atlas, VIII, pl. CCCXXII, fig. 3; Boulenger, Cat., I, 271.

117. Grammistes sexlineatus (Thunberg).

One specimen from Bacon (no. 3750; length 3 in.).

Perca sexlineata Thunberg, K. Vetensk. Acad. n. Handl., XIII, 1792, 142, pl. V, no locality.
Grammistes sexlineatus, Boulenger, Cat., I, 346.

118. Psammoperca waigiensis (Cuvier & Valenciennes).

One small specimen from Bulan (no. 3759; length 1.85 in.).

Labrax waigiensis Cuvier & Valenciennes, Hist. Nat. Poiss., II, 61 (83), 1828, Waigiou.
Psammoperca waigiensis, Bleeker, Atlas, VII, 108, pl. CCCVI, fig. 2.
Psammoperca waigiensis, Boulenger, Cat., I, 365 (Cebu).

119. Plectropoma calcariferum (Bloch). *Mulmul.*

One specimen from Zamboanga (no. 4065; length 13.5 in.).

Holocentrus calcarifer Bloch, Ichth., IV, 80, pl. CCXLIV, 1797, Japan.
Lates calcarifer, Day, Fishes India, 7, pl. 1, fig. 1; Boulenger, Cat., I, 363.

120. Pharopteryx nigricans Rüppell.

One specimen from Bacon (no. 3837; length 1.5 in.).

Pharopteryx nigricans Rüppell, Atlas, Fische, 15, pl. IV, fig. 2, 1828, Red Sea.
Plesiops nigricans, Günther, Cat., III, 363; Boulenger, Cat., I, 340.

Family PRIACANTHIDÆ.

121. Priacanthus hamrur (Forskål).

One specimen from Bulan (no. 3267; length 7.5 in.).

Head 3 in length; depth 2.75; eye 2.56 in head; snout 3; interorbital 3.75; gillrakers 15 on lower limb of first arch; preopercular spine 2 in pupil; tenth dorsal spine 2.5 in head, or 1.7 times length of second; longest soft rays of dorsal a third longer than longest spine; pectoral 1.9 in head; ventrals 1.1, the spine 1.8; third anal longer than sixth dorsal spine, nearly equal to tenth; dorsal spines smooth, the anal and ventrals spinulose.

Ventrals black on distal third and a black spot in axil; dorsal and anal margined with black.

Boulenger gives the number of gillrakers on lower limb of first arch as 18 to 23. Our specimen has 15. This range is great and may represent 2 or more species.

Sciæna hamrur Forskål, Descr. Anim., 45, 1775, Red Sea.
Priacanthus hamrur, Boulenger, Cat., I, 355.

Family LUTIANIDÆ.

122. Diacope sebæ Cuvier & Valenciennes.

Three fine specimens from Bulan (no. 4072 to 4074; length 4.75 to 5.25 in.).

Diacope sebæ Cuvier & Valenciennes, Hist. Nat. Poiss., II, 310 (411), 1828, Waigiou.
Lutianus sebæ, Day, Fishes India, 30, pl. IX, fig. 3.

123. Lutianus quinquelineatus (Bloch).

Five specimens from Bulan (no. 3535, 3311, 3272, 3273, and 3218; length 6 to 6.5 in.), and one from Bacon (no. 3312; length 6.5 in.).

Easily distinguished by the 5 blue stripes along side and the large black blotch under beginning of soft dorsal.

Holocentrus quinquelineatus Bloch, Ichth., IV, 84, tab. CCCXXXIX, 1797.
Mesoprion quinquelineatus, Cuvier & Valenciennes, Hist. Nat. Poiss., II, 336 (442) (Java); Günther, Cat., I, 209.
Lutianus quinquelineatus, Day, Fishes India, 40, pl. XII, fig. 3; Bleeker, Atlas, VIII, 56, pl. CCCXLIII, fig. 4.

124. Lutianus decussatus (Kuhl & Van Hasselt). *Bugsang.*

Four specimens from Bacon (no. 3954 and 3264 to 3266; length 5.75 to 7 in.).

Easily distinguished by the 5 or 6 broad longitudinal brownish bands, the upper 3 crossed by short vertical bars, and a black spot on base of caudal.

Mesoprion decussatus Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., II, 369 (487), 1828. Java; Günther, Cat., I, 210.
Lutianus decussatus, Day, Fishes India, 47, pl. XIV, fig. 4; Bleeker, Atlas, VIII, 72, pl. CCCXXXVIII, fig. 1

125. Lutianus monostigma (Cuvier & Valenciennes).

One specimen from Bacon (no. 3640; length 6.5 in.). No teeth on tongue; dark spot on the lateral line smaller than in *L. johnii*, which has distinct teeth on tongue.

Mesoprion monostigma Cuvier & Valenciennes, Hist. Nat. Poiss., II, 337 (446), 1828. Seychelles.
Lutianus luoglossus Bleeker, Atlas, VIII, 70, pl. CCCXLIV, fig. 4. Bintang, Java, Celebes, Amboyna.

126. Lutianus fulviflamma (Forskal). *Bitilla.*

One specimen from Bacon (no. 4168; length 10.25 in.), and 2 from Zamboanga (no. 3459 and 3413; length 6 and 7 in.).

Sciæna fulviflamma Forskal, Descr. Anim., 45, 1775, Red Sea.
Mesoprion fulviflamma, Günther, Cat., I, 204, in part.
Lutianus fulviflamma, Day, Fishes India, 41, pl. XII, fig. 6; Bleeker, Atlas, VIII, 65, pl. CCCXLIV, fig. 3.

127. Lutianus johnii (Bloch). *Bitilla; Manila.*

Two specimens from Jolo (no. 4041 and 4042; length 8 and 10 in.), one from Bacon (no. 4166; length 10 in.), and 2 from Bulan (no. 3539 and 3540; length 5.5 and 6.2 in.).

Readily distinguished by its having the rows of scales parallel with the back; teeth on tongue.

Anthias johnii Bloch, Ichth., IX, 97, pl. CCCXVIII, 1797.
Mesoprion johnii, Günther, Cat., I, 200.
Lutianus johnii, Bleeker, Atlas, VIII, 49, pl. CCCXXXVIII, fig. 3; Day, Fishes India, 42, pl. XIII, fig. 1.

128. Lutianus luzonius Evermann & Seale, new species.

Head 2.55 in length; depth 2.55; eye 4 in head; snout 3.1; interorbital 1.8; dorsal X, 14; anal III, 8; scales 7–48–16; teeth on tongue.

Body oblong, moderately elevated and compressed; dorsal surface evenly curved; depth of caudal peduncle 3.18 in head; jaws equal; maxillary scarcely reaching anterior margin of pupil, its length 2.55 in head; greatest width of premaxillary not more than 2 in pupil; mandible 2.5 in head; preorbital 1.75 in eye; teeth on jaws, vomer, palatines, and tongue, those of jaws in a single series, small, caninè-shaped, the anterior ones of upper jaw enlarged; gillrakers 11 on lower limb, the longest about equal to pupil; notch of preopercle very deep and distinct, the lower limb slightly produced backward, rounded, and rather strongly toothed; knob of interopercle large and strong; opercle ending in a single sharp point; origin of dorsal slightly anterior to origin of pectoral, the distance between tip of snout and first dorsal spine scarcely greater than length of head, longest spine 2.7 in head, longest soft ray 3.5; origin of anal midway between origin of ventrals and base of caudal, its base 3.75 in base of dorsal, the longest ray 2.75 in head, the second spine longest and strongest, 2.5 in head; ventrals 1.75 in head, their tips reaching vent; pectoral 1.24, the tip scarcely reaching line with origin of anal; caudal emarginate, 1.3 in head.

Color in spirits, dull yellowish white, with a round black spot about size of eye entirely above lateral line under anterior part of soft dorsal; scales with slightly darker centers, giving an appearance of fine indistinct oblique dusky lines above lateral line and longitudinal ones below; a distinct black spot occupying upper base and axil of pectoral; fins uniform, without marking.

Three fine specimens from Bacon (no. 3229, 3230, 3675; length 5.75 to 6.8 in.). This species is related to *L. russelli* (Bleeker), from which it appears to differ in the deeper preopercular notch, the strong interopercular knob, the long pectoral fin, and in coloration.

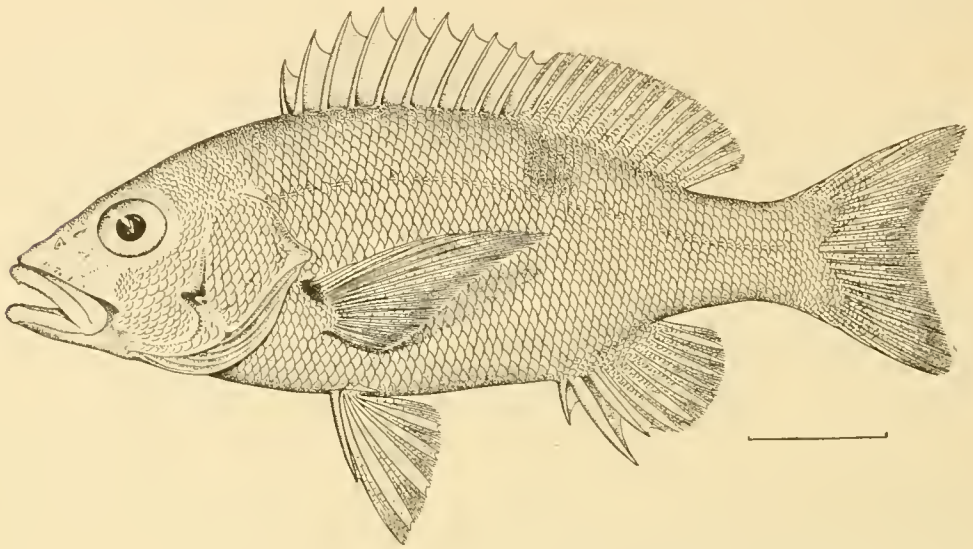

FIG. 13.—*Lutianus luzonius* Evermann & Seale, new species. Type.

Type, no. 55918, U. S. National Museum (original no. 3230), a specimen 6.8 inches long, from Bacon, Sorsogon, P. I.; collector Charles J. Pierson. Cotypes, no. 4539, Bureau of Fisheries, and no. 20003, Stanford University.

129. Lutianus furvicaudatus Fowler.

One specimen from Bacon (no. 3785; length 8.5 in.). This species is distinguished from *L. lunulatus* by the shorter maxillary and scarcely perceptible lingual teeth. We have examined Mr. Fowler's type.

Lutianus furvicaudatus Fowler, Journ. Acad. Nat. Sci. Phila., 2d ser., vol. XII, 1904 (June 10), 525, pl. XVIII, lower fig., Padang. (Type, 7⅞ in. long, no. 27596, Phila. Acad. Nat. Sci.).

130. Lutianus gibbus (Forskål).

One specimen from Bacon (no. 4035; length 5 in.).

Sciæna gibba Forskål, Descr. Anim., 46, 1775, Red Sea.
Genyoroge gibba, Günther, Cat., I, 180.
Mesoprion gibbus, Günther, Fische der Südsee, 12, taf. 12, 13 (fig. A).

131. Lutianus erythropterus Bloch.

One specimen from San Fabian (no. 3343; length 5.8 in.).

Lutianus erythropterus Bloch, Ichth., VII, 93, pl. CCXLIX, 1797, Japan; Day, Fishes India, 32, pl. X, figs. 1 and 2; not of Bleeker.
Mesoprion erythropterus, Günther, Cat., I, 205.

132. Lutianus lunulatus (Mungo Park).

Five specimens from Bacon (no. 3309, 3310, and 4135 to 4137; length 6.5 to 7.5 in.), and one from Bulan (no. 3517; length 7 in.).

Perca lunulata Mungo Park, Trans. Linn. Soc. Lond., III, 1797, 35, pl. 6, Sumatra.
Lutianus lunulatus, Bleeker, Atlas, VII, pl. CCXCV, fig. 1, and Atlas, VIII, 66 (Sumatra, Celebes).

133. Lutianus vitta (Quoy & Gaimard). *Bitilla.*

Two specimens from Bacon (no. 3718 and 3719; length 5.75 and 6.1 in.), one from Bulan (no. 3595; length 5 in.), and one from Zamboanga (no. 4096; length 9 in.).

Serranus vitta Quoy & Gaimard, Voy. Uranie, 315, pl. 58, fig. 3, 1824, Waigiou.
Diacope vitta Temminck & Schlegel, Fauna Japonica, Pisces, 13, pl. VI, fig. 1.
Lutianus vitta, Day, Fishes India, 46, pl. XIV, fig. 2.

134. Lutianus lineatus (Quoy & Gaimard). *Mangot.*

One specimen from San Fabian (no. 4125; length 7.5 in.). This specimen is abnormal, in that it has but 9 dorsal spines; teeth on tongue.

Diacope lineata Quoy & Gaimard, Voy. Uranie, Zool., 309, 1824, Rawak et Waigiou.
Mesoprion lineatus, Günther, Cat., I, 193.
Lutjanus lineatus, Bleeker, Atlas, VII, pl. CCCIV, fig. 4, and Atlas, VIII, 69 (East Indies).

135. Lutianus amboinensis (Bleeker).

One specimen from Bulan (no. 3226; length 6.95 in.). Dorsal with 11 spines; no teeth on tongue.

Mesoprion amboinensis Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 259, Amboyna.
Lutjanus amboinensis Bleeker, Atlas, VII, pl. CCCXVIII, fig. 2, and Atlas, VIII, 57 (East Indies).
Genyoroge amboinensis, Günther, Cat., I, 183 (Amboyna).

136. Lutianus lineolatus (Rüppell).

Four specimens from Bacon (no. 3358, 3359, 3361, and 3362; length 6 to 6.5 in.), and 6 from Bulan (no. 3245 to 3247, 3605, and 3596; length 5.75 to 6.1 in.).

Diacope lineolata Rüppell, Atlas, Fische, 76, pl. 19, fig. 3, 1828, Massaua; not of Bleeker.
Mesoprion lineolatus, Günther, Cat., I, 205.
Lutianus lineolatus, Day, Fishes India, 35, pl. XI, figs. 1 and 2.

137. Lutianus malabaricus (Bloch & Schneider).

One small specimen (no. 4006; length 1.75 in.), from Bulan, probably the young of this species.

Sparus malabaricus Bloch & Schneider, Syst. Ichth., 278, 1801, "in mari Indico."
Lutianus malabaricus, Day, Fishes India, 31, pl. IX, fig. 4.

138. Gymnocranius lethrinoides (Bleeker).

Three specimens from Bulan (no. 4046 to 4048; length 4.5 to 6 in.).

Dentex lethrinoides Bleeker, Sparoiden, 11, Verh. Bat. Gen., XXIII, 1850, Batavia.
Gymnocranius lethrinoides Bleeker, Atlas, VIII, 96, pl. CCCXXXII, fig. 1, and pl. CCCXXXIV, fig. 3.

139. Pinjalo typus (Bleeker).

One specimen from San Fabian (no. 3344; length 6.5 in.), and one from Bulan (no. 4038; length 11.5 in.).

Cæsio typus Bleeker, Mænoiden, 10, Verh. Bat. Gen., XXIII, 1850, Batavia; Day, Fishes India, 94, pl. XXIV, fig. 4; Günther, Cat., I, 391; Bleeker, Atlas, VII, pl. CCXCIII, fig. 3, and Atlas, VIII, 33.

140. Nemipterus nemurus (Bleeker). *Pukit.*

Two specimens from Jolo (no. 3748 and 3778; length, with caudal filament, 12.5 and 13.5 in.).

Dentex nemurus Bleeker, Amboina, 49; Act. Soc. Sci. Ind. Neerl., II, 1857; Atlas, VIII, 87, pl. CCCXXXV, fig. 4, Amboyna.
Synagris nemurus, Günther, Cat., I, 378.

141. Nemipterus worcesteri Evermann & Seale, new species.

Head 3.45 in length; depth 3.75; eye 3.75 in head; snout 2.5; interorbital 1.9 in snout; dorsal x, 9; anal 9; scales 4–48–11.

Body oblong, moderately compressed; depth of caudal peduncle 3.35 in head; anterior profile of head not evenly rounded, being somewhat convex in front of eye; mouth rather large, the lower jaw slightly the longer;

maxillary 2.85 in head; mandible 3; distal end of maxillary not reaching to below anterior border of eye; preorbital 3.75; bands of small teeth in jaws, with small canines anteriorly, and a row of slightly enlarged curved teeth in each side; gillrakers represented by wide blunt knobs, 7 on lower limb; body covered by thin delicate scales, 3 rows on cheek; preopercle entire; operele with a single spine at posterior margin; origin of dorsal on line with origin of pectoral, longest dorsal spine 2.1 in head, the longest ray 2.5; webs of dorsal fin scarcely incised; origin of anal slightly nearer origin of ventral than base of caudal, its longest ray 3.25 in head; base of anal 2.95 in base of dorsal; ventrals 1.4 in head, their origin below pectoral, their tips not reaching vent; pectoral 1.45 in head; caudal forked; none of the fins with elongate rays.

Color in spirits, yellowish white with slight tint of brown above; no stripes; a wide deep black band entirely encircling caudal peduncle, the black extending out slightly on upper and lower rays of caudal.

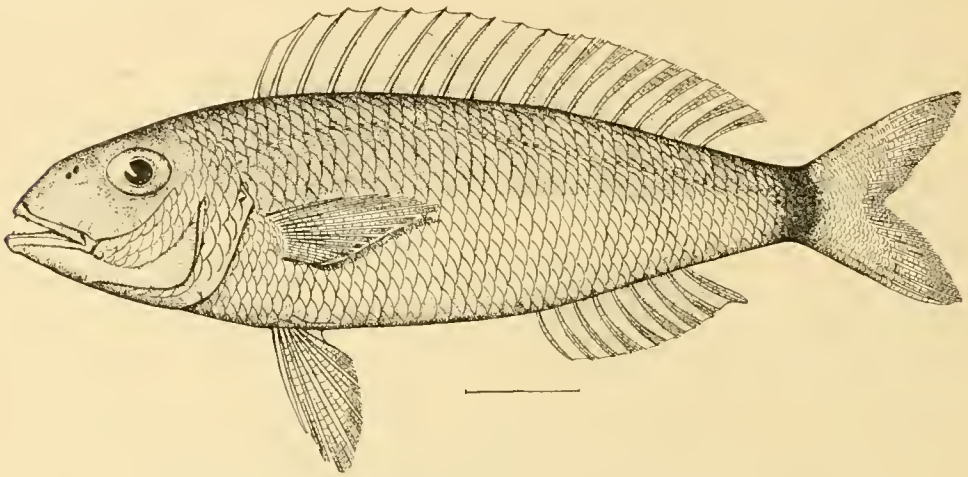

FIG. 14.—*Nemipterus worcesteri* Evermann & Seale, new species. Type.

One specimen (no. 4124; length 8.5 in.), from Bacon, Sorsogon, P. I., type no. 55917, U. S. National Museum; collector Charles J. Pierson.

We take pleasure in naming this species for the Hon. Dean C. Worcester, of the Philippine Commission, in recognition of his valuable work in promoting the study of the zoology of the Philippine Islands.

142. Nemipterus tæniopterus (Cuvier & Valenciennes). *Baga.*

One specimen from San Fabian (no. 3512; length 8 in.).

Dentex tæniopterus Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 183 (246), locality unknown.
Synagris tæniopterus, Günther, Cat., I, 374 (N. E. coast of Australia; Moluccа Sea).

143. Nemipterus japonicus (Bloch).

One specimen from San Fabian (no. 3436; length 7.5 in.).

Sparus japonicus Bloch, Ichth., pl. CCLXXVII, fig. 1.
Dentex blochi Bleeker, Nat. Tijds. Ned. Ind., II, 1851, 176, Batavia; Atlas, VIII, 90, pl. CCCXXX, fig. 4.
Synagris japonicus, Günther, Cat., I, 378; Day, Fishes India, 92, pl. XXIV, fig. 2.

144. Nemipterus ovenii (Bleeker).

Two specimens from Bulan (no. 3371 and 3372; length 6.25 and 7.5 in.).

Dentex ovenii Bleeker, Nat. Tijds. Ned. Ind., VII, 1854, 246, Celebes; Atlas, VIII, 86, pl. CCCXXVIII, fig. 5.
Synagris ovenii, Günther, Cat., I, 375.

145. Cæsio cuning (Bloch).

Fifteen specimens from Bacon (no. 3621 to 3636, 3400 to 3402, 3641, 3642, 3654 to 3657, 3486 to 3488, 4044 and 4045; length 4.75 to 10 in.) and one from Zamboanga (no. 4043; length 10 in.).

Sparus cuning Bloch, Ichth., pl. CCLXIII, fig. 1.
Cæsio cuning, Day, Fishes India, 95.

146. Cæsio cærulaurens (Lacépède). *Sulik.*

Eighteen specimens from Bacon (no. 3481 to 3485, 3543 to 3548, 3473, 3474, 3985, and 1114 to 4117; length 4.75 to 8 in.), one from Zamboanga (no. 3419), and one from San Fabian (no. 3708).

Cæsio cærulaurens Lacépède, Hist. Nat. Poiss., III, 86, 1829; Günther, Cat., I, 392; Bleeker, Atlas, VIII, 39, pl. CCCXLVII, fig. 4.

147. Cæsio chrysozona Kuhl & Van Hasselt.

Ten specimens from Bacon (no. 3702 to 3707, 4010, 4011, 3930, and 3931; length 5 to 6 in.).

Cæsio chrysozona Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 331 (440) Indian Archipelago; Günther Cat., I, 392; Day, Fishes India, 95, pl. XXIV, fig. 5.

Family HÆMULIDÆ.

148. Terapon jarbua (Forskål). *Bungao; Siran bandaonon; Belaque.*

Two specimens from Bulan (no. 4104 and 4105; length 5 and 7 in.) and 3 from San Fabian (no. 3261 3265, and 4145; length 4 to 7 in.).

Sciæna jarbua Forskål, Descr. Anim., 50, 1775 Red Sea.
Therapon servus, Günther, Cat., I, 278.
Therapon jarbua, Day, Fishes of India, 69, pl. XVIII, fig. 4.

149. Terapon puta Cuvier & Valenciennes. *Dacoson.*

Twenty specimens from Bulan (no. 3695; length 2.1 to 2.75 in.), 60 from Bacon (no. 3701; length 2 to 2.45 in.), and 2 from San Fabian (no. 3738 and 3838; length 4.75 and 5.1 in.).

Therapon puta Cuvier & Valenciennes, Hist. Nat. Poiss., III, 98 (131) East Indies; Day, Fishes India, 68, pl. XVIII, fig. 3.
Therapon ghebul Ehrenberg in Cuvier & Valenciennes, Hist. Nat. Poiss., III, 99 (133); Günther, Cat., I, 281.
Therapon trivittatus, Günther Cat., I, 280.

150. Terapon quadrilineatus (Bloch). *Dacoson; Agaac.*

Twenty specimens from Bulan (no. 4198 and 3708; length 2.1 to 2.75 in.) and 2 specimens from San Fabian, (no. 3827 and 3975; length 5.75 in.). Ventrals reaching vent.

Holocentrus quadrilineatus Bloch, Ichth., VII, 63, pl. CCXXXVIII, fig. 2, 1797, no locality.
Therapon quadrilineatus, Günther, Cat., I, 282; Day, Fishes India, 70, pl. XVIII, fig. 5.

151. Terapon theraps (Cuvier & Valenciennes).

Five specimens from Bulan (no. 4200; length 2.1 in.) and 1 from Bacon (no. 4199; length 2.75 in.). In this species the ventrals do not reach the vent, which is located midway between base of caudal and origin of ventrals. In *T. quadrilineatus* the ventrals reach the vent, which is located much nearer to origin of ventrals than to base of caudal.

Therapon theraps Cuvier & Valenciennes, Hist. Nat. Poiss., III, 97 (129), pl. 53; Günther, Cat., I, 274; Day, Fishes India, 70, pl. XVIII, fig. 6.

152. Pomadasis maculatus (Bloch). *Lacsagu.*

Four specimens from San Fabian (no. 3334, 3335, 3337, and 3338; length 6 to 7 in.).

Anthias maculatus Bloch, Ichth., X, 7, pl. CCCXXVI, fig. 2, 1797, East Indies.
Pristipoma maculatum, Günther, Cat., I, 293 (Torres Strait; Amboyna); Bleeker, Atlas, VII, pl. CCCVIII, fig. 2.
Pomadasys maculatus, Bleeker, Atlas, VIII, 27.

153. Pentapus caninus (Cuvier & Valenciennes).

Three specimens from Bacon (no. 3935, 3936, and 3847; length 4.9 to 5.5 in.). Head 3.5 in length; depth 3.6; scales 3-44-12; dorsal x, 9; anal III, 7.

Scolopsides caninus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 266 (354), **New Guinea.**
Scolopsis caninus, Günther, Cat., I, 364.
Pentapus bifasciatus Bleeker, Atlas, VII, 103, pl. CCXCV, fig. 5.

154. Pentapus setosus Cuvier & Valenciennes. *Bakutut.*

Two specimens from Bulan (no. 3844 and 3846; length 5 and 5.1 in.) and 1 from Jolo (no. 3204; length 7.95 in.). Dorsal x, 9; anal III, 7; scales 45; depth 3.1; head 3.1. Small specimens show a dark spot at base of caudal.

Pentapus setosus Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 200 (270), **Batavia**; Günther, Cat., I, 382; Bleeker, Atlas, VIII, 101, pl. CCCXXIV, fig. 1.

155. Plectorhynchus pictus (Thunberg).

One specimen from Bulan (no. 4142; length 7 in.), and one from Jolo (no. 4068; length 9 in.).

Perca picta Thunberg, K. Vetensk. Acad. n. Handl., XIII, 143, pl. 5, 1792, **no locality.**
Diagramma pictum, Günther, Cat., I, 327.
Plectorhynchus pictus, Bleeker, Atlas, VIII, 24, pl. CCCXXIX, fig. 4.

156. Plectorhynchus chrysotænia (Bleeker).

Two small specimens from Bulan (no. 4201; length 2 and 3.2 in.).

Diagramma chrysotænia Bleeker, Nat. Tijds. Ned. Ind., IX, 1855, 393, **Celebes.**
Plectorhynchus chrysotænia, Bleeker, Atlas, VIII, 16, pl. CCCXXIX, fig. 1; Günther, Cat., I, 333.

157. Plectorhynchus goldmanni (Bleeker). *Manila.*

One specimen from Jolo (no. 3219; length 8 in.), and one from San Fabian (no. 4150; length 7 in.).

Diagramma goldmanni Bleeker, Nat. Tijds. Ned. Ind., IV, 602, 1853, **Ternate**; Günther, Cat., I, 331.
Plectorhynchus goldmanni Bleeker, Atlas, VIII, 21, and Atlas, VII, pl. CCXCV, fig. 2.

158. Plectorhynchus celebicus Bleeker. *Kiting.*

Two specimens from Jolo (no. 4064; length 2.5 and 10.5 in.). This species is easily distinguished from *P. chrysotænia*, in which the caudal is not notched.

Plectorhynchus celebicus Bleeker, Ned. Tijds. Dierk., IV, 1873, 285, **Celebes**; Atlas, VIII, 18, pl. CCCXXIX, fig. 3.

159. Scolopsis cancellatum (Cuvier & Valenciennes).

Two specimens from Bacon (no. 3420 and 3887; length 4.2 and 6.75 in.), and 2 from Bulan (no. 3209 and 4071; length 6.1 and 6.2 in.).

Scolopsides cancellatus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 264 (351), 1830, **Sandwich Islands, Waigiou** and **Rauwac.**
Scolopsis cancellatus, Günther, Cat., I, 361 (Sumatra); Day, Fishes India, 86, pl. XXII, fig. 6.

160. Scolopsis bilineatum (Bloch).

One specimen from Bulan (no. 3875; length 5.75 in.).

Anthias bilineatus Bloch, Ichth., X, 1, pl. CCCXXV, fig. 1, 1797, **Japan.**
Scolopsis bilineatus, Günther, Cat., I, 357 (Amboyna; Celebes); Day, Fishes India, 85, pl. XXII, fig. 3 (Andamans).

161. Scolopsis margaritiferum (Cuvier & Valenciennes).

Four specimens from Bacon (no. 3736, 3360, 3537, and 3499; length 7.5 to 8 in.), and 2 from Bulan (no. 4134 and 3796; length 7.5 and 8.2 in.). Depth 2.5; head 3.2; dorsal x, 9; anal III, 7; scales 37.

Scolopsides margaritifer Cuvier & Valenciennes, Hist. Nat. Poiss., v, 254 (337), **Waigiou.**
Scolopsis margaritifer, Günther, Cat., I, 355; Bleeker, Atlas, VII, pl. CCCXVII, fig. 2, and Atlas, VIII, 3.

162. Scolopsis luzonia Jordan & Seale.

Thirteen specimens from Bacon (no. 3730 to 3733, 3403 to 3406, 3829 to 3831, 4001 and 4017; length 4 to 6 in.), and one from San Fabian (no. 3332). A prominent serrated ridge on maxillary.

Scolopsis luzonia Jordan & Seale, Bull. Bu. Fisheries, XXVI, 1906, Cavite, Luzon. (Collected by Dr. Lung; type, no. 9243, Stanford Univ.).

163. Scolopsis monogrammus (Kuhl & Van Hasselt).

One specimen from Bulan (no. 3277; length 5.85 in.).

Head 3 in length; depth 2.8; eye 3.5 in head; snout 3; interorbital equals eye; scales 5–48–11, 6 rows on cheek.

Color in spirits, yellowish; an indistinct dusky band almost width of eye from head to caudal.

This species is close to *S. personatus*, from which it differs in the greater depth, narrower interorbital, smaller scales, and in having 6 rows of scales (instead of 5) on the cheek.

Scolopsides monogramma Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., v, 254 (338) Java; Günther, Cat., 1, 358.

Scolopsis monogramma, Bleeker, Atlas, VIII, II, pl. CCCXXXV, fig. 3.

164. Scolopsis bulanensis Evermann & Seale, new species.

Head 3.25 in length; depth 3.3; eye 2.75 in head; interorbital 3.5; snout 3.55; dorsal x, 9; anal III, 7; scales 4–43–10.

Body oblong, moderately compressed; depth of caudal peduncle 3 in head; anterior profile of head slightly convex above eyes; mouth rather small, jaws equal; maxillary 3.75 in head, its distal end not reaching to

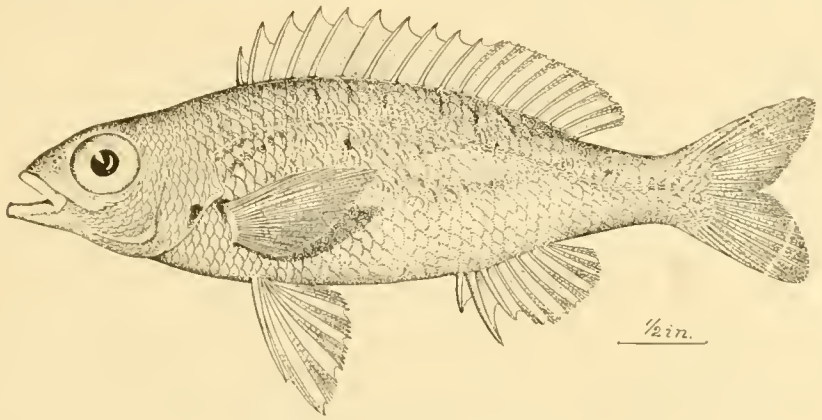

FIG. 15.—*Scolopsis bulanensis* Evermann & Seale, new species. Type.

anterior margin of orbit; mandible 2.95 in head; teeth villiform in jaws and on vomer; preorbital width 3 in eye, with one strong spine above and 2 smaller ones below, the large one reaching slightly past middle of eye; gillrakers consisting of blunt knobs, about 7 on lower arch; posterior margin of preopercle denticulate; opercle with a single spine at its posterior margin; body fully scaled, 5 series on cheek; scales on top of head minute, those on belly larger; vertical fins unscaled, but fitting into scaly sheath; origin of dorsal slightly posterior to origin of pectoral, longest spine 2.75 in head, longest ray 2.75; origin of anal nearer origin of ventrals than to base of caudal, its longest ray 2.7 in head, the second anal spine longest and strongest, 2.5 in head, base of anal 3.6 in base of dorsal; ventrals 1.3 in head, their tip falling far short of anal; pectoral 1.35 in head, scarcely reaching tip of ventrals; caudal forked.

Color in spirits, dull yellowish brown; an indistinct dusky longitudinal line on side; short oblique black lines between pectoral fin and lateral line; an oblong white blotch extending forward and downward from posterior axil of dorsal to near middle of body; a black spot at axil of pectoral, another on posterior portion of opercle just in front of pectoral; fins unmarked.

This species is related to *S. personatus*, from which it differs in the larger eye, more slender body, and the color.

One specimen, the type, no. 55909, U. S. National Museum (original no. 3845), 4.25 inches long, from Bulan, Sorsogon, P. I.; collector Charles J. Pierson.

Family SPARIDÆ.

165. Sparus calamara Russell.

One specimen from Bulan (no. 3258; length 6.5 in.). Pectoral longer than head; ventrals reaching past vent.

Sparus calamara Russell, Fishes Coromandel, I, pl. 92, 1803, **Coromandel.**
Chrysophrys calamara, Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 85 (117); Günther, Cat., I, 493.
Chrysophrys berda var. *calamara*, Day, Fishes India, 140, pl. XXXV, fig. 2 (Sind and Malabar).

166. Lethrinus nematacanthus Bleeker.

Three specimens from Bulan (no. 3457, 3458, and 3946; length 4.75 to 6 in.). This species is easily distinguished by the elongate second dorsal spine which is contained 1.5 in head. A black spot between pectoral and lateral line.

Lethrinus nematacanthus Bleeker, Ichth. Japon., 90, Verh. Bat. Gen., XXVI, 1854, **Japan**; Bleeker, Atlas, VIII, 114, pl. CCCXXXVII, fig. 3; Günther, Cat., I, 456 (Louisiade Archipelago).

167. Lethrinus richardsoni Günther.

Twenty-five specimens from Bacon (no. 3205 to 3208, 3236, 3237, 3238, 3313, 3317 to 3323, 3329 to 3341, 3527 to 3530, 3820, 3821, and 3967; length 3.75 to 6.5 in.).

Lethrinus haematopterus, Richardson, Voy. Sulphur, 144, pl. 64, fig. 1; not of Temminck & Schlegel.
Lethrinus richardsonii Günther, Cat., I, 456, 1859, **China**; **Hongkong**; Jordan & Evermann, Proc. U. S. Nat. Mus., XXV, 1903, 350 (Formosa).

168. Lethrinus mœnsii Bleeker.

Four specimens from Bacon (no. 3526, 3452, 3934, and 3969; length 4.5 to 6.5 in.).

Lethrinus mœnsii Bleeker, Nat. Tijds. Ned. Ind., IX, 1855, 435, **Batjan**; Bleeker, Atlas, VII, pl. CCXCVII, fig. 3, and Atlas, VIII, 115; Günther, Cat., I, 455 (Copang; Timor; Louisiade Archipelago); Fische der Südsee, 64, pl. 46, fig. A (Paumotu; Harvey; Pelew; Kingsmill; Society Islands).

169. Lethrinus variegatus Ehrenberg.

One specimen from San Fabian (no. 3326; length 6.5 in.). Known by its slender body, long snout, and peculiar conical lateral teeth.

Lethrinus variegatus Ehrenberg in Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 213 (287), **Massauah, Suez**; Bleeker, Atlas, VII, pl. CCCXVII, fig. 1, and Atlas, VIII, 117, pl. CCCXXVIII, fig. 3, and pl. CCCXXX, fig. 2.

170. Lethrinus hypselopterus Bleeker.

One specimen from "Philippine Islands" (no local label, no. 4169; length 10.2 in.).

Head 3 in length; depth 2.6; eye 4 in head; snout 2; preorbital 2.4; scales 6–46–14; dorsal x, 9; anal III, 7; pectoral nearly as long as head.

Lethrinus hypselopterus Bleeker, Nat. Tijds. Dierk., IV, 326, **Sumatra**; Atlas, VIII, 114, pl. CCCXXX, fig. 3.

171. Lethrinus harak (Forskål). *Bakulut.*

One specimen from Jolo (no. 4109; length 9 in.), 9 from Bacon (no. 3316, 3453 to 3456, 3970, 3968 and 3525; length 2.25 to 6.75 in.), and 2 from San Fabian (no. 3338; length 2.5 and 2.75 in.).

Sciæna harak Forskål, Descr. Anim., 52, 1775, **Red Sea.**
Lethrinus harak, Günther, Cat., I, 458 (Red Sea); Bleeker, Atlas, VIII, 119, pl. CCCXXVII, fig. 3; Day, Fishes of India, 137, pl. XXX, fig. 3.

172. Lethrinus ornatus Cuvier & Valenciennes.

One specimen from Bulan (no. 3862; length 1.95 in.).

Lethrinus ornatus Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 231 (310), Java; Bleeker, Atlas, VIII, 118, pl. CCCL, fig. 4.
Lethrinus xanthotænia Bleeker, Nat. Tijds. Ned. Ind., II, 1851, 176, Sumatra; Günther, Cat., I, 461.

173. Lethrinus mahsenoides Ehrenberg.

One specimen from Philippines (no local label, no. 4167; length 10.2 in.).

Lethrinus mahsenoides Ehrenberg in Cuvier & Valenciennes, Hist. Nat. Poiss., VI, 212 (286), no locality given; Günther, Cat., I, 464 (Philippines; Amboyna); Bleeker, Sparoiden., 15, Ver. Bat. Gen., XXIII, 1850.

Family SCIÆNIDÆ.

174. Umbrina dussumieri Cuvier & Valenciennes. *Ibot.*

Five specimens from San Fabian (no. 4097 to 4101; length 4 to 5.25 in.).

Umbrina dussumieri Cuvier & Valenciennes, Hist. Nat. Poiss., IX, 355 (481), Coromandel; Günther, Cat., II, 278; Bleeker, Atlas, IX, pl. CCCLXXXVII, fig. 4; Day, Fishes of India, 183, pl. XLIII, figs. 2 and 3.

175. Umbrina russelli Cuvier & Valenciennes. *Balaqua.*

Three specimens from San Fabian (no. 3268 to 3270; length 4.75 and 6.1 in.).

Umbrina russelli Cuvier & Valenciennes, Hist. Nat. Poiss., V, 132 (178), Coromandel; Günther, Cat., I, 278; Day, Fishes of India, 183, pl. XLIII, fig. 4.
Sciæna russelli Bleeker, Atlas, IX, pl. CCCLXXXVI, fig. 2.

176. Otolithus argenteus Kuhl & Van Hasselt.

One specimen from Bacon (no. 3441; length 9 in.).

Otolithus argenteus Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., V, 47 (62), Batavia; Günther, Cat., II, 310; Bleeker, Atlas, IX, pl. CCCLXXXV, fig. 5.

177. Johnius belengeri (Cuvier & Valenciennes). *Ibot.*

One specimen from San Fabian (no. 3709; length 7.75 in.).

Corvina belengerii Cuvier & Valenciennes, Hist. Nat. Poiss., V, 89 (120); Günther, Cat., II, 303 (Malabar).
Johnius belengeri, Bleeker, Atlas, IX, pl. CCCLXXXVII, fig. 1.

Family SILLAGINIDÆ.

178. Sillago macrolepis Bleeker.

Two specimens from Bulan (no. 4094 and 4095; length 7.25 and 8 in.). Eye 4 in head, 1.75 in snout; snout 2.35 in head; scales about 60.

Sillago macrolepis Bleeker, Nat. Tijds. Ned. Ind., XVII, 1858, 166, Bali, and Atlas, IX, pl. CCCLXXXIX, fig. 1; Günther, Cat., II, 246.

Family MULLIDÆ.

179. Mulloides vanicolensis (Cuvier & Valenciennes)

Two specimens from Zamboanga (no. 4090 and 4091; length 9 and 10 in.).

Upeneus vanicolensis Cuvier & Valenciennes, Hist. Nat. Poiss., VII, 391 (521), Vanicolo.
Mulloides vanicolensis, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. I, 1903 (July 29, 1905), 254.

180. Mulloides samoensis Günther. *Tubac.*

One specimen from San Fabian (no. 4130; length 5.55 in.) and one from Bacon (no. 4131; length 6.25 in.). This species is easily distinguished by the black spot on side under posterior end of pectoral.

Mulloides samoensis Günther, Fische der Südsee, 57, pl. 43, fig. B, Apia, Samoa; Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, 1903, 253, fig. 105 (Oahu Island: Hilo).

181. Mulloides japonicus (Houttuyn).

Four specimens from Bulan (no. 3901 to 3904; length 4.75 in.). Head 3.5 in length; depth 3.85; scales 30; 3 or 4 dusky oblique bands on caudal, almost obliterated on lower lobe, an indistinct dusky line on side from head to caudal.

No difference can be detected in these specimens when compared with specimens from Japan.

Mullus japonicus Houttuyn, Verh. Holl. Maat. Weet. Haarlem, xx., deels, 2 stuk, 1782, p. 311-346, **Nagasaki.**
Mulloides japonicus, Günther, Cat., 1, 404; Snyder, Proc. U. S. Nat. Mus., xxxi, 1906, 552 (Misaki).
Upeneus japonicus, Cuvier & Valenciennes, Hist. Nat. Poiss., iii, 339 (460), 1829 (Japan).

182. Upeneus tragula Richardson.

Three specimens from Bacon (no. 3634 to 3636; length 5.25 to 6.5 in.).

Upeneus tragula Richardson, Ichth. China, in Rept. Brit. Assoc., xv, 1845, 220, **Canton**; Günther, Cat., 1, 398.

183. Upeneus sulphurus Cuvier & Valenciennes. *Belaque.*

Six specimens from San Fabian (no. 3921; length 3.5 in.).

Upeneus sulphurus Cuvier & Valenciennes, Hist. Nat. Poiss., iii, 331 (450), **Antjer.**
Upeneoides sulphureus, Günther, Cat., 1, 398.

184. Upeneus sundaicus (Bleeker).

One specimen from Bacon (no. 3201; length 5.1 in.). Head 3.5 in length; depth 3.75; eye 4 in head; interorbital 4; scales 2-32-5; dorsal viii, 9; anal ii, 6; teeth in villiform bands on jaws, palatines, and vomer, those on vomer very minute, easily overlooked, possibly sometimes absent. Color in spirits yellowish, an indistinct dark longitudinal line from eye to caudal; fins unmarked.

Upeneoides sundaicus Bleeker, Nat. Tijds. Ned. Ind., viii, 1855, 411, **East Indies**, and Atlas, ix, pl. cccxciv, fig. 2; Günther, Cat., 1, 399.

185. Pseudupeneus moana Jordan & Seale.

One specimen from Bacon (no. 3249; length 9 in.).

Upeneus trifasciatus Günther, Fische der Südsee, 59, pl. 44, fig. B (Vavau; Samoa; Amboyna); not of Lacépède
Pseudupeneus moana Jordan & Seale, Fishes of Samoa; Bull. Bu. Fisheries, xxv, 1905 (1906), 274, **Samoa.**

186. Pseudupeneus bifasciatus (Lacépède). *Pinorugnan.*

One specimen from Bacon (no. 3275; length 8.75 in.).

Mullus bifasciatus Lacépède, Hist. Nat. Poiss., iii, 404, pl. 14, fig. 2, 1801, **no locality.**
Pseudupeneus bifasciatus, Jordan & Evermann, Bull. U. S. Fish. Comm., xxiii, 1903, 258, fig. 107 (Hawaiian Islands)

187. Pseudupeneus barberinus (Lacépède).

One specimen from San Fabian (no. 3972; length 5.2 in.) and one from Bacon (no. 3886; length 4.75 in.).

Mullus barberinus Lacépède, Hist. Nat. Poiss., iii, 406, pl. 13, fig. 3, 1801.
Upeneus barberinus, Günther, Cat., 1, 405 (Amboyna; Moluccas; India).

188. Pseudupeneus indicus (Shaw). *Tiao.*

Three specimens from Bacon (no. 3615, 3616, and 4108; length 5.5 to 6.5 in.) and one from Bulan (no. 3672; length 7.75 in.).

Mullus indicus Shaw, Zool., iv, pt. 2, 614, 1803, **Indian Seas.**
Upeneus indicus, Günther, Cat., 1, 406 (China).

189. Pseudupeneus spilurus (Bleeker).

One specimen from Bulan (no. 3861; length 4 in.). This species has a distinct black spot on caudal peduncle above the lateral line and a dusky blotch at the anterior origin of lateral line.

Upeneus spilurus Bleeker, Nat. Tijds. Ned. Ind., vi, 395, 1854, **Nagasaki**; Günther, Cat., 1, 406.

190. Pseudupeneus luteus (Cuvier & Valenciennes).

One specimen from Jolo (no. 4141; length 7.5 in.). Head 3.1 in length; depth 3.51; eye 5 in head; snout 2; scales 30; barbels short, not reaching base of ventral. Color in spirits, uniform yellow, no saddle over caudal peduncle.

Upeneus luteus Cuvier & Valenciennes, Hist. Nat. Poiss., VII, 392 (521), Ile de France; Day, Fishes of India, 125, pl. XXXI, fig. 2.
Parupeneus luteus, Bleeker, Atlas, IX, pl. CCCXCIV, fig. 1.

Family POMACENTRIDÆ.

191. Pomacentrus trimaculatus Cuvier & Valenciennes. *Bitilla.*

Two specimens from Bacon (no. 3798 and 3790; length 5.25 in.) and one from San Fabian (no. 3972).

Pomacentrus trimaculatus Cuvier & Valenciennes, Hist. Nat. Poiss., V, 320 (427), no locality; Günther, Cat., IV, 19; Day, Fishes of India, 382, pl. LXXX, fig. 10.
Dischistodus trimaculatus, Bleeker, Atlas, IX, pl. CCCCIV, fig. 5.

192. Pomacentrus jerdoni Day.

Thirteen specimens from Bulan (no. 3391 to 3399 and 3786 to 3789; length 3.75 to 6 in.).

These agree with Day's description in every respect. They have 13 dorsal spines, a black spot on upper axil of pectoral, the lateral line discontinued under posterior end of soft dorsal, and not continued on caudal peduncle, as in *P. tapeinosoma*, which has only 12 dorsal spines.

Pomacentrus jerdoni Day, Fishes of India, 383, pl. LXXX, fig. 7, Madras.

193. Pomacentrus moluccensis Bleeker.

One specimen from Bacon (no. 3895; length 2.75 in.). Color yellowish brown; a small black spot at origin of lateral line, another in upper axil of pectoral.

Pomacentrus moluccensis Bleeker, Nat. Tijds. Ned. Ind., IV, 1853, 118, Amboyna, and Atlas, IX, pl. CCCCII, fig. 3 (Molucca) Günther, Cat., IV, 30.

194. Pomacentrus littoralis Kuhl & Van Hasselt. *Kiting.*

Two specimens from Bacon (no. 3896 and 3852; length 4 in.). Preopercle and preorbital strongly serrated. Color in spirits, brownish, including all the fins; a small dusky spot at origin of lateral lines; some bluish markings on head.

This species is similar to *P. moluccensis* in some respects, but the latter is a deeper fish, considerably lighter in color, with a black spot in axil of pectoral.

Pomacentrus littoralis Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., V, 318 (425), Java; Bleeker, Atlas IX, pl. CCCCIV, fig. 8; Günther, Cat., IV, 32 (Amboyna; Dove Island; Port Essington).

195. Pomacentrus tripunctatus Cuvier & Valenciennes.

Eleven specimens from Bacon (no. 3679 and 3681 to 3690; length 2.5 to 3.5 in.).

These specimens are all uniform brownish in color, the caudal scarcely lighter; a distinct round black spot on top of caudal peduncle posterior to axil of soft dorsal fin; preopercle and preorbital denticulate. Our specimens agree with Bleeker's figure, except that they are not quite so deep, the depth being 2.2 in length without caudal; preorbital distinctly serrate.

Pomacentrus tripunctatus Cuvier & Valenciennes, Hist. Nat. Poiss., V, 315 (421), Vanicolo; Günther, Cat., IV, 33.
Pomacentrus trilineatus, Günther, Cat., IV, 25; Bleeker, Atlas, IX, pl. CCCCVI, figs. 1-6.

196. Pomacentrus tæniurus Bleeker.

One specimen from Philippine Islands (no local label; no. 3998; length 2.75 in.).

Preopercle but slightly denticulate. A black spot at beginning of lateral line; posterior part of soft dorsal whitish—probably yellow in life.

Pomacentrus tæniurus Bleeker, Act. Soc. Sc. Ind. Ned., I, Amboina, 51, 1856, Amboyna; Atlas, IX, pl. CCCCVIII, fig. 2; Günther, Cat., IV, 22.

197. Pomacentrus popei Evermann & Seale, new species.

Head 3 in length; depth 1.9; eye 2.8 in head; snout 3.5; interorbital 2.75; dorsal XIII, 12; anal II, 13; scales 3–24–9.

Body elevated, compressed; depth of caudal peduncle 2 in head; anterior profile evenly rounded; jaws equal; a single series of blunt, rather strong teeth in each jaw, none on vomer or palatines; gillrakers sharp, 13 on lower limb, the longest equal to one-half eye; maxillary not reaching anterior margin of eye, its length equal to eye; mandible 2.75 in head; greatest preorbital width 2 in eye, its margin denticulate with a rather strong spine below anterior third of eye; preopercle strongly denticulate; opercle with a single spine on its posterior margin; body and head fully covered with firm pectinate scales; no scales on preorbital, about 3 rows of scales on cheek; scales on top of head small, about 20 series in front of dorsal; origin of dorsal on line with axil of pectoral, the distance between tip of snout and origin of dorsal 2.2 in length; longest spine 2.25 in head; middle ray of soft dorsal longest, 1.35 in head; origin of anal fin midway between base of caudal and origin of ventral, the middle rays of fin longest, 1.35 in head; second anal spine longest, 1.75 in head; origin of ventral below axil of pectoral, its tip reaching vent; pectoral equal to head; caudal emarginate, 1.1 in head.

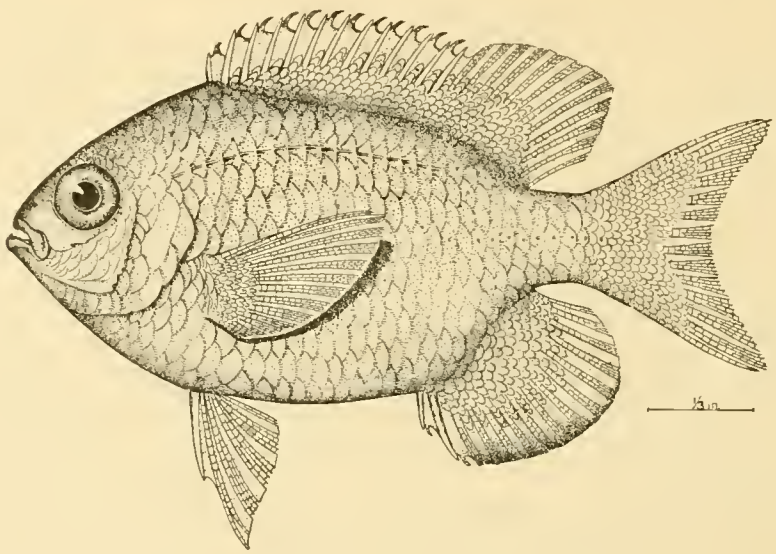

FIG. 16. *Pomacentrus popei* Evermann & Seale, new species. Type.

Color in spirits, straw-yellow, no spots or dots on body or in axil of any fin; anal fin rather broadly margined with black; a narrow brownish margin to dorsal, indistinct on soft dorsal; otherwise fins all yellow, unmarked.

One fine specimen (no. 3470; length 2.45 in.). Type, no. 55903, U. S. National Museum, collected by Charles J. Pierson at Bacon, Sorsogon, P. I.

Named for our friend and associate, Mr. Thomas Edmund Burt Pope, scientific assistant, U. S. Bureau of Fisheries.

198. Pomacentrus alexanderæ Evermann & Seale, new species.

Head 3.45 in length; depth 2; eye 3 in head; interorbital 3.2; snout 4.5; dorsal XIII, 14; anal II, 14; scales 4–27–9.

Body compressed, elevated; depth of caudal peduncle 2 in head; anterior profile evenly rounded; mouth small; teeth in a single row in each jaw; maxillary ending on a line with anterior margin of orbit, its length slightly less than eye; mandible 3.1 in head; preorbital with some minute denticulations and one rather strong spine below anterior margin of pupil; greatest width of preorbital 2.5 in eye; preopercle distinctly denticulate; opercle with spine on posterior margin; gillrakers small, sharp-pointed, 13 on lower limb, the

longest 2.5 in eye; 2 or 3 rows of scales on cheek; body and head fully scaled; lateral line with but 16 distinct tubules; about 20 series of scales in front of dorsal; origin of dorsal on a line with axil of pectoral, the spines gradually increasing in length, the last being longest, 1.5 in head, the anterior spine scarcely equal to eye; webs of spinous dorsal deeply incised; middle soft dorsal ray the longest, 1.25 in head; origin of anal below base of eleventh dorsal spine, its base 1.1 in head, its longest ray 1.3, the second spine 1.55; vertical fins with deep scaly sheath; ventral slightly nearer origin of anal fin than to tip of snout, its tip reaching vent; pectoral equal to length of head; caudal emarginate, the lobes pointed, length greater than head.

Color in spirits, dull yellowish, shading gradually into a soft brown on upper anterior portion of body and head; a large, deep, black spot covering entire base and axil of pectoral fin; some slight indications of very indistinct yellow longitudinal lines on side; spinous dorsal brownish, with dusky margin extending along upper edge of soft dorsal; soft dorsal becoming yellow on posterior half; anal yellow, the marginal third dusky; caudal yellow; ventrals with slight tint of dusky; pectoral yellow.

Seven specimens from Bacon (no. 3996 and 3995; length 3.25 to 3.5 in.). Type, no. 55919, U. S. National Museum, from Bacon, Sorsogon, P. I., length 3.5 in., collected by Mr. Charles J. Pierson. Of the cotypes one

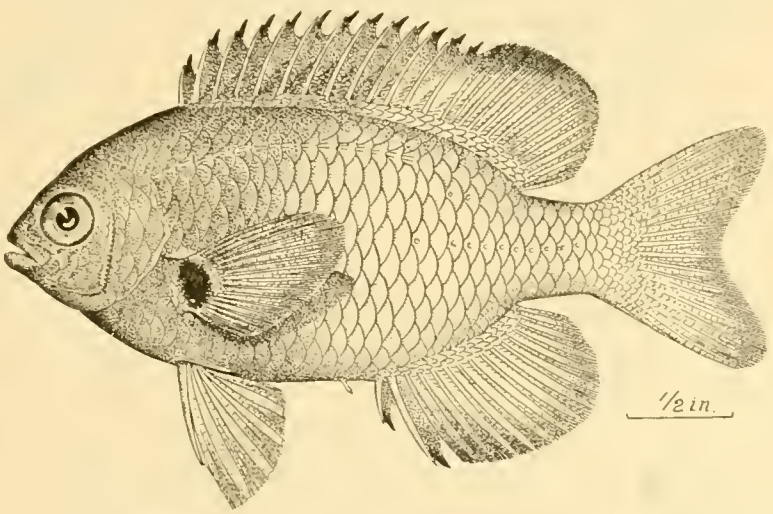

FIG. 17.—*Pomacentrus alexandræ* Evermann & Seale, new species. Type.

(Bureau of Fisheries, no. 3996) is no. 20005, Stanford University Museum; another is no. 1540, U. S. Bureau of Fisheries, and there is one each in the museum at Manila, Philadelphia Academy of Natural Sciences, U. S. National Museum, and Indiana University Museum.

Named for Miss Annie M. Alexander, of Oakland, California, in recognition of her interest and work in zoology.

199. Pomacentrus philippinus Evermann & Seale, new species.

Head 3.35 in length; depth 2; eye 3 in head; snout 4.1; interorbital 2.75; dorsal XIII, 14; anal II, 14; scales 1–26–9, –18 tubes.

Body oblong, compressed; depth of caudal peduncle 1.75 in head; anterior profile evenly rounded; jaws equal, maxillary scarcely equal to diameter of eye, its distal end under anterior margin of eye; mandible 3 in head; small teeth in jaws in single series, none on vomer or palatines; gillrakers slim, sharp-pointed, 12 on lower limb, the longest about equal to pupil; preorbital with 2 or 3 small denticulations, greatest width of preorbital 3 in eye; preopercle distinctly denticulate; opercle with a single spine on posterior border; body and head fully scaled, a single row on preorbital, 2 rows on cheek, a single row on lower limb of preopercle; very fine scales on top of head, about 23 series in front of dorsal; origin of dorsal above axil of pectoral; distance between origin of dorsal and tip of snout 1.25 in depth of fish; longest dorsal spine 1.75 in head, length of anterior spines 4.75; middle ray of dorsal longest, equal to head, its tip slightly produced; webs of spinous dorsal incised; origin of anal nearer base of ventral than base of caudal, the second spine the longest, 2.45 in head; middle ray of anal longest, about

equal to head, the tip slightly produced; ventral below axil of pectoral, the first ray produced into a filament reaching posterior to vent; pectoral slightly greater than head, its tip on a line with vent; caudal greater than head, the lobes produced.

Color in spirits, purplish, slightly lighter on thorax; caudal yellow, fading into purplish on caudal peduncle; lower half of soft dorsal and upper half of anal yellow, the other portion of these fins dusky, the line of demarcation between the 2 colors abrupt; ventrals black; pectoral dusky, a black spot on upper two-thirds of pectoral base and on axil of fin.

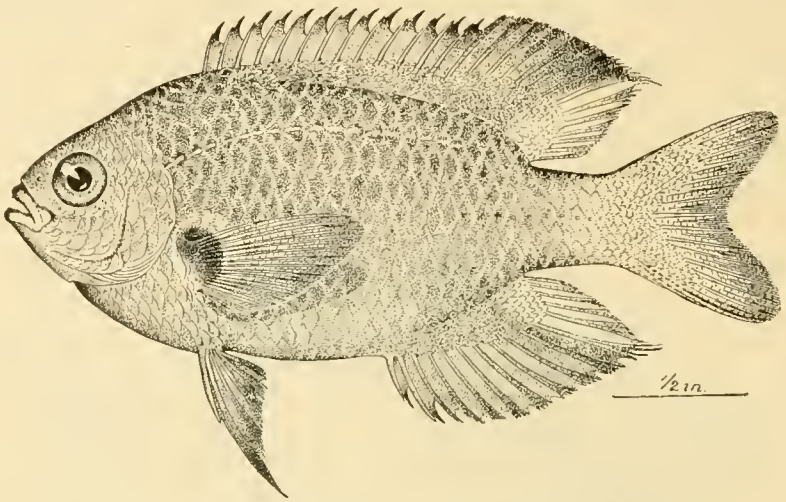

FIG. 18.—*Pomacentrus philippinus* Evermann & Seale, new species. Type.

Two specimens from Bacon (no. 4207 and 4028; length 2.5 and 2.75 in.). Type, no. 55901, U. S. National Museum, from Bacon, Sorsogon, P. I., collected by Charles J. Pierson, and cotype, no. 20009, Stanford University Museum.

200. Abudefduf xanthurus (Bleeker).

Eleven specimens from Bacon (no. 3461 to 3469, 3906, and 3854; length 3.5 to 4.5 in.).

Glyphidodon xanthurus Bleeker, Nat. Tijds. Ned. Ind., v, 1853, 345, Amboyna; Günther, Cat., iv, 47 (Ceram; Amboyna).
Paraglyphidodon xanthurus Bleeker, Atlas, ix, pl. cccxv, fig. 3.

201. Abudefduf bankieri (Richardson).

Five specimens from Bacon (no. 3891, 4205, and 4206; length 1.75 to 2.5 in.).

Glyphisodon bankieri Richardson, Ichth. China, 253, 1846, Hongkong; Günther, Cat., iv, 54 (China).
Parapomacentrus bankieri Bleeker, Atlas, ix, pl. cccxviii, fig. 8.

202. Abudefduf zonatus (Cuvier & Valenciennes).

Two specimens from Bacon (no. 4208 and 3680; length 2 and 2.5 in.).

Glyphisodon zonatus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 361 (483), 1830, New Guinea.
Glyphidodontops zonatus, Bleeker, Atlas, ix, pl. cccxvii, fig. 3.
Glyphidodon brownriggii Günther, Fische der Südsee, 232, pl. 127, fig. A and C; in part.

203. Abudefduf cyaneus (Quoy & Gaimard).

Four specimens from Bacon (no. 3863 and 4212; length 1.2 to 2.25 in.). Dorsal xiii, 12; preorbital and preopercle entire; depth 2.2 without caudal; head 3.35. Color in spirits deep blue; pectoral, soft dorsal, caudal, ventral, and anal yellowish; a small indistinct deeper blue spot at origin of lateral line; no spot in axil of pectoral or on soft dorsal; no stripes on head.

One specimen (no. 4212) is uniform blue without yellowish on fins. This specimen is slightly less in depth than the others, the ventral fins being also a little darker in color.

Glyphisodon cyaneus Quoy & Gaimard, Voy. Uranie, Zool., 392, pl. 64, fig. 3, 1824; no locality.

204. Abudefduf antjerius (Kuhl & Van Hasselt).

Three specimens from Bacon (no. 3470, 3471, and 4210; length 1.1 to 2.1 in.).

Glyphisodon antjerius Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., v, 360 (481), Antjer; Günther, Cat., iv, 50 (Amboyna; Borneo).

205. Abudefduf glaucus (Cuvier & Valenciennes).

Three specimens from Bacon (no. 4202 to 4201; length 2 to 2.5 in.).

Glyphisodon glaucus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 355 (475), 1830, Guam.

206. Abudefduf curaçao (Bloch).

Seven specimens from Bacon (no. 4020, 4021, 3925, 3926, 3779, 3877, and 3879; length 2.75 to 4 in.). These specimens differ from the descriptions and figure in having the lower posterior part of anal dusky and a dusky wash on upper and lower margin of caudal, but not as in *A. celestinus*, with which we have compared it.

Chætodon curaçao Bloch, Ichth., vi, 79, pl. ccxii, fig. 1, 1797, Curaçao.
Glyphisodon trifasciatus; Günther, Cat., iv, 42 (Amboyna; Ceram).

207. Abudefduf septemfasciatus (Cuvier & Valenciennes).

One specimen from Bulan (no. 3879; length 4.95 in.).

Glyphisodon septemfasciatus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 346 (463), 1830, Ile de France; Günther, Cat., iv, 40, 1862 (China; Philippine Islands; Ceylon).

208. Abudefduf unimaculatus (Cuvier & Valenciennes).

Two specimens from Bacon (no. 4209 and 4210; length 2 and 2.75 in.). Head 3.4 in total length; depth 2.1; dorsal xiii, 13; anal ii, 12. Color in spirits purplish, a black spot in axil of soft dorsal.

Glyphisodon unimaculatus Cuvier & Valenciennes, Hist. Nat. Poiss., v, 358 (478), Timor.
Glyphidodon unimaculatus, Günther, Cat., iv, 51 (Borneo).
Glyphidodontops unimaculatus, Bleeker, Atlas, ix, pl. cccvii, fig. 5 (not 6, as labeled).

Family LABRIDÆ.

209. Cheilinus fasciatus (Bloch).

Three specimens from Bacon (no. 3971 to 3973; length 4.2 in.).

Sparus fasciatus Bloch, Ichth., viii, 15, pl. cclvii, 1797, Japan.
Cheilinus fasciatus, Günther, Cat., iv, 129 (Amboyna); Bleeker, Atlas, i, 67, pl. xxvi, fig. 2.

210. Cheilinus chlorurus (Bloch).

Five specimens from Bacon (no. 3503, 3504 and 3872 to 3874; length 4 to 7.75 in.).

Sparus chlorurus Bloch Ichth., viii, 21, pl. cclx, 1797, "Japan and St. Domingue."
Cheilinus chlorurus, Günther, Cat., iv, 128 (Amboyna; Ceylon, Ceram; Ancityum); Bleeker, Atlas, i, 65, pl. xxvii, fig. 3.

211. Stethojulis zatima Jordan & Seale.

One specimen from Bacon (no. 4214; length 1.75 in.) and one without local label (no. 4191, length 1.5 in.).

Stethojulis zatima Jordan & Seale, Proc. U. S. Nat. Mus., xxviii, 788, 1905, Negros, Philippine Islands.

212. Stethojulis phekadopleura (Bleeker).

One specimen from Bacon (no. 4215; length 2 in.).

Julis phekadopleura Bleeker, Ichth. fauna Bali, 8, Verh. Bat. Gen., xxii, 1849, Bali.
Stethojulis phekadopleura Bleeker, Atlas, i, 134, pl. xliii, fig. 5; Günther, Cat., iv, 143.

213. Cheilio inermis (Forskål).

Fourteen specimens from Bacon (no. 3520, 3584 to 3586, 3413 to 3415, 3652, 3699, 3945, 3610, 3611, 3720 and 3836; length 3.2 to 13.5 in.).

Lubrus inermis Forskål, Descr. Anim., 34, 1775, Red Sea.
Cheilio inermis, Jordan & Evermann, Bull. U. S. Fish Comm., xxiii, pt. 1, 1903 (1905), 314, pl. xxxiii (Honolulu, Hilo).

214. Lepidaplois mesothorax (Bloch & Schneider).

One specimen from Bacon (no. 3920; length 5.5 in.).

Labrus mesothorax Bloch & Schneider, Syst. Ichth., 254, 1801, India.
Cossyphus mesothorax, Günther, Cat., IV, 103 (Ceram; Amboyna); Bleeker, Atlas, I, 159, pl. XXXVIII, fig. 4 (misprinted *mesotyorax* in text).

215. Labroides paradiseus Bleeker.

Two specimens from Bacon (no. 3843; length 2 and 2.75 in.).

Labroides paradiseus Bleeker, Nat. Tijds. Ned. Ind., II, 249, Banda; Atlas, I, pl. XLIV, fig. 2.

216. Thalassoma lunaris (Linnæus).

One specimen from Bacon (no. 3995; length 4.75 in.). A small patch of scales on upper part of opercle; anal with 2 spines.

Labrus lunaris Linnæus, Syst. Nat., ed. X, 283, 1758, India.
Julis lunaris Bleeker, Atlas, I, 90, pl. XXXIII, fig. 5.

217. Novaculichthys macrolepidotus (Bloch).

One specimen from Bacon (no. 3918; length 4 in.). This specimen seems to have more dusky on the sides than any others so far examined, there being a wide, more or less interrupted, black band from head to caudal.

Labrus macrolepidotus Bloch, Ichth., VIII, 109, pl. CCLXXXIV, 1797, East Indies.
Novaculichthys macrolepidotus, Bleeker, Atlas, I, 144, pl. XXXI, fig. 6.
Novacula macrolepidota, Günther, Cat., IV, 174 (Mozambique).

218. Halichœres scapularis (Bennett).

Seven specimens from Bacon (no. 3840, 3963 to 3965, and 4147 to 4149; length 2 to 6.25 in.). These form a perfect series in size and intergradation of color from the figure and descriptions given by Bleeker and Day to the young as described by Jordan and Seale. There can be no doubt that *Guntheria cœruleovittata*, *Platyglossus scapularis*, and *H. cymatogrammus* are one and the same species, the difference in color markings being due to age.

Julis scapularis Bennett, Proc. Comm. Zool. Soc. Lond. 1831, 167, Mauritius.
Guntheria cœruleovittata Bleeker, Atlas, I, pl. XXXII, fig. 2.
Platyglossus scapularis, Day, Fishes India, 400, pl. LXXXV, fig. 4.
Halichœres cymatogrammus Jordan & Seale, Proc. U. S. Nat. Mus., XXVIII, 1905 (July 3), 786, fig. 8, Negros, Philippine Islands. (Young.)

219. Halichœres purpurescens (Bloch & Schneider).

One specimen from Bacon (no. 4014; length 5 in.).

Labrus purpurescens Bloch & Schneider, Syst. Ichth., 262, 1801.
Platyglossus purpurascens, Günther, Cat., IV, 158; Bleeker, Atlas, I, 108, pl. XLV, fig. 1.

220. Halichœres nigrescens (Bloch & Schneider).

Two specimens from Bulan (no. 4075 and 4076; length 5.2 and 6.5 in.).

Labrus nigrescens Bloch & Schneider, Syst. Ichth., 263, 1801.
Halichœres nigrescens Bleeker, Atlas, I, 118, pl. XXXVII, fig. 4.

221. Halichœres miniatus (Kuhl & Van Hasselt.)

Seven specimens from Bacon (no. 4003 and 4213; length 1 to 3 in.).

Julis miniatus Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., XIII, 337 (460), Java; Günther, Cat., IV, 150.
Halichœres miniatus, Bleeker, Atlas, I, 114, pl. XLI, fig. 5.

222. Halichœres guttatus (Bloch).

Five specimens from Bacon (no. 3753 and 4000; length 2.5 to 2.75 in.).

Labrus guttatus Bloch, Ichth., pl. CCLXXXVIII, fig. 2, 1797, New Holland.
Labrus urgus Bloch & Schneider, Syst. Ichth., 263, 1801.
Platyglossus guttatus, Günther, Cat., IV, 155 (Sumatra; Ceram; Chusan).
Halichœres guttatus, Bleeker, Atlas, I, 124, pl. XXXV, fig. 1.

223. Halichœres leparensis (Bleeker). *Masangui.*

Twelve specimens from Bacon (no. 3770 and 4001; length 1.25 to 2 in.) and one from San Fabian (no. 3835; length 1.25 in.).

Julis leparensis Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 730, Banka.
Halichœres leparensis Bleeker, Atlas, I, 119, pl. XLII, fig. 5.
Platyglossus leparensis, Günther, Cat., IV, 156.

224. Halichœres pœcilus (Lay & Bennett).

Seven specimens from Bacon (no. 3980; length 1.5 to 3.5 in.).

Julis pœcila Lay & Bennett, Zool. Beech. Voy., Blossom, 66, pl. 19, fig. 1, Loo-Choo Islands.
Halichœres pœcila, Bleeker, Atlas, I, 115, pl. XXXIX, fig. 4.
Platyglossus pœcilus, Günther, Cat., IV, 152.
Halichœres annulatus Fowler, Journ. Ac. Nat. Sci. Phila., 2d ser., XII, 535, pl. XX, upper fig., June 10, 1904, Sumatra.

Family PSEUDOCHROMIDÆ.

225. Labracinus trispilos (Bleeker).

Two specimens from Bacon (no. 4216; length 1.2 and 1.25 in.).

Cichlops trispilos Bleeker, Nat. Tijds. Ned. Ind., IX, 1855, 110, Halmaheira, Batjan; Bleeker, Atlas, IX, pl. CCCXC, fig. 2.

226. Labracinus melanotænia (Bleeker).

One specimen from Bulan (no. 3933; length 5.5 in.).

Cichlops melanotænia Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 765, Macassar, Celebes; Günther, Cat., II, 259.
Pseudochromis melanotænia, Bleeker Atlas, IX, pl. CCCXC, fig. 5.

Family SCARICHTHYIDÆ.

227. Chœrops anchorago (Bloch). *Mulmul.*

Nine specimens from Bacon (no. 3552 to 3554, 3536, 3691, 3692, 4138, 4139, and 4066; length 5 to 8.5 in.), and one from Jolo (no. 3239; length 6 in.).

Sparus anchorago Bloch, Ichth., VIII, 85, pl. CCLXXVI, 1797.
Chœrops anchorago, Günther, Cat., IV, 95 (Amboyna).

228. Chœrops auritum (Kuhl & Van Hasselt). *Duldul.*

One specimen from Bacon (no. 3819; length 3 in.), and 2 (no. 4067 and 4070; length 9 in.), without definite locality.

The degree of development of the canine teeth varies greatly in this as in related species.

Scarus auritus Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., XIV, 161 (218), 1839, Java.
Scarichthys auritus, Günther, Cat., IV, 213 (Amboyna; Hongkong; Ancityum); Bleeker, Atlas, I, 15, pl. I, fig. 3.

229. Scarichthys cœruleopunctatus (Rüppell). *Duldul.*

One specimen from Jolo (no. 4110), 2 from Bulan (no. 3241 and 3242; length 5.5 and 6.5 in.), and 3 from Bacon (no. 3737 and 3799; length 6 to 10.2 in.).

This species may be distinguished from *S. auritus* by the strong development of canine teeth.

Scarus (Calliodon) caruleo-punctatus Rüppell, Neue Wirb., Fische, 24, pl. 7, fig. 3, Djedda; Günther, Cat., IV, 213; Bleeker, Atlas, I, 16, pl. I, fig. 2.

230. Calotomus genistriatus (Cuvier & Valenciennes). *Ogus; Palit.*

One specimen from Zamboanga (no. 3773; length 8.75 in.), and one from Jolo (no. 4055; length 9.75 in.).

Callyodon genistriatus Cuvier & Valenciennes, Hist. Nat. Poiss., XIV, 218 (293), 1839, no locality given; Günther, Cat., IV, 215; Bleeker, Atlas, I. 13, pl. I, fig. 1.

231. Callyodon quoyi (Cuvier & Valenciennes).

One specimen from Bacon (no. 3234; length 7.5 in.).

Scarus quoyi Cuvier & Valenciennes, Hist. Nat. Poiss., XIV, 203 (273), 1839 **New Ireland (New Mecklenburg).**
Pseudoscarus quoyi, Bleeker, Atlas, I, 29, pl. VI, fig. 3 (Ternate); Günther, Cat., IV, 239.

232. Callyodon lacerta (Cuvier & Valenciennes).

Three specimens from Bulan (no. 3938, 3939, and 3240; length 4.75 to 6.2 in.), and one from Bacon (no. 4126).

Scarus lacerta Cuvier & Valenciennes, Hist. Nat. Poiss., XIV, 161 (217), 1839, **Pondicherry.**
Pseudoscarus æruginosus Bleeker, Atlas, I, 40, pl. XVII, fig. 2, 1862; Günther, Cat., IV, 229.

233. Callyodon oktodon (Bleeker). *Mulmul.*

One specimen from Zamboanga (no. 3715; length 10.75 in.).

Pseudoscarus oktodon Bleeker, Versl. Kon. Akad. Wet., XII, 1861, 235, **Buton**; Bleeker, Atlas, I, 33, pl. XIII, fig. 2, 1862.
Pseudoscarus octodon, Günther, Cat., IV, 234.

234. Callyodon balinensis (Bleeker).

One specimen from Bacon (no. 3735; length 8.25 in.).

Scarus balinensis Bleeker, Ichth. Fauna Bali, 8, Verh. Bat. Gen., XXII, 1849, **Bali.**
Pseudoscarus balinensis Bleeker, Atlas, I, 39, pl. XVI, fig. 3, 1862; Günther, Cat., IV, 228.

Family CHÆTODONTIDÆ.

235. Chætodon selene Bleeker.

One specimen from Bulan (no. 4342; length 5.2 in.). This specimen shows a wide dusky longitudinal stripe along the median line of side from caudal, fading out near head.

Chætodon selene Bleeker, Nat. Tijds. Ned. Ind., V, 76, 1853, **Solor**; Günther, Cat., II, 30 (Amboyna).
Tetragonoptrus (*Chætodontops*) *selene* Bleeker, Atlas, IX, pl. CCCLXXVII, fig. 5.

236. Chætodon auriga Forskål.

One specimen from Bacon (no. 3694; length 4.75 in.).

Chætodon auriga Forskål, Descr. Anim., 60, 1775, **Red Sea**; Günther, Cat., II, 7 (Red Sea).
Tetragonoptrus (*Linophora*) *auriga*, Bleeker, Atlas, IX, pl. CCCLXXIII, fig. 4.

237. Chætodon vagabundus Linnæus.

One specimen from Bacon (no. 3387; length 5.35 in.).

Chætodon vagabundus Linnæus, Syst. Nat., ed. X, 276, 1758, **Indies**; Günther, Cat., II, 25 (Mauritius; Amboyna); Fowler, Fishes of Sumatra, 544, 1904.
Tetragonoptrus (*Linophora*) *vagabundus*, Bleeker, Atlas, IX, 48, pl. CCCLXXVIII, fig. 1 (Sumatra, etc.).

238. Chætodon falcula Bloch.

Two specimens from Bacon (no. 3369 and 3370; length 5.1 and 5.25 in.).

Chætodon falcula Bloch, Ichth., XII, 100, pl. CCCCXXVI, fig. 2, 1797, **Coromandel**; Günther, Cat., II, 17 (Batoe); Günther, Fische der Südsee, pl. 27, fig. c.
Tetragonoptrus (*Oxychætodon*) *falcula*, Bleeker, Atlas, IX, 52, pl. CCCLXXIII, fig. 1.

239. Chætodon octofasciatus Bloch.

Two specimens from Bacon (no. 3894 and 3917; length 2.75 and 3.1 in.). These specimens show a dusky spot below the lateral line between the fourth and fifth black bands.

Chætodon octofasciatus Bloch, Ichth., VI, 85, pl. CCXV, fig. 1, 1797, **East Indies**; Günther, Cat., II, 17 (Singapore).
Tetragonoptrus (*Tetragonoptrus*) *octofasciatus*, Bleeker, Atlas, IX, 38, pl. CCCLXXVI, fig. 3.

240. Chætodon unimaculatus Bloch.

One specimen from Bacon (no. 3342; length 4 in.). This specimen has a dusky wedge-shaped area extending down from the black spot.

Chætodon unimaculatus Bloch, Ichth., pl. CCI, fig. 1, East Indies; Günther, Cat., II, 11.
Tetragonoptrus (Lepidochætodon) unimaculatus, Bleeker, Atlas, IX, 45, pl. CCCLXXV, fig. 5.

241. Taurichthys varius Cuvier & Valenciennes.

One large specimen from Bacon (no. 3336; length 5.56 in.).

Taurichthys varius Cuvier & Valenciennes, Hist. Nat. Poiss., VII, 111 (1831), pl. 181, 1831, no locality given.
Heniochus varius, Günther Cat., II, 41 (Molucca Sea; Amboyna).

242. Heniochus acuminatus (Linnæus). *Pampanon.*

One specimen from Bacon (no. 3437; length 4.25 in.), and 3 young from San Fabian (no. 3771; length 2 in.).

Chætodon acuminatus Linnæus, Syst. Nat., ed. X, 272, 1758, Indies.
Chætodon macrolepidotus Linnæus, Syst. Nat., ed. X, 274, 1758; after Artedi.
Heniochus macrolepidotus, Günther, Cat., II, 39 (Ceylon; Amboyna; Port Essington; Australia).
Taurichthys macrolepidotus, Bleeker, Atlas, IX, 29, pl. CCCLXVII, fig. 1. (Misprinted *microlepidatus* on plate.)
Heniochus acuminatus, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 376, pl. LV (Honolulu).

Family PLATACIDÆ.

243. Platax orbicularis (Forskål). *Kiting.*

Two fine adults from Jolo (no. 4158 and 4159; length 6 and 6.5 in.). Anterior dorsal and anal rays greatly produced, those of dorsal exceeding total length of fish; ventrals very long, equaling length of fish to base of caudal.

Chætodon orbicularis Forskål, Descr. Anim., 59, 1779. Red Sea.
Chætodon vespertilio Bloch, Ichth., VI, 49, pl. CXCIX, fig. 2, 1797.
Platax vespertilio, Day, Fishes India, 236, pl. LI, fig. 5; Bleeker, Atlas, IX, 74, pl. CCCLXXIX, fig. 1, and pl. CCCLXXX, figs. 2 and 3.
Platax orbicularis, Günther, Cat., II, 490 (Port Essington).

Family EPHIPPIDÆ.

244. Ephippus argus (Gmelin). *Pingao* (young); *Saramolleta.*

Three specimens from Bacon (no. 4087 to 4089; length 5.5 to 6.75 in.), and 7 young from San Fabian (no. 3988, length 2 to 2.55 in.).

Chætodon argus Gmelin, Syst. Nat., 1248, 1788, Indies.
Scatophagus argus, Günther, Cat., II, 58 many localities; Day, Fishes India, 114, pl. XXIX, fig. 3.

Family ACANTHURIDÆ.

245. Hepatus celebicus (Bleeker).

One specimen from Bulan (no. 4122; length 6.75 in.). White ring obsolete.

Acanthurus celebicus Bleeker, Nat. Tijds. Ned. Ind., III, 1852, 761, Celebes; Günther, Cat., III, 339.

246. Ctenochætus striatus (Quoy & Gaimard). *Saliao.*

Two specimens from Zamboanga (no. 4120 and 4121; length 8.2 and 9.5 in.).

Acanthurus striatus Quoy & Gaimard, Voy. Uranie, Zool., 373, pl. 63, fig. 3, 1824, Guam; Günther, Cat., III, 334.
Ctenochætus striatus, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 398 (Hilo; Honolulu; Kailua).

247. Acanthurus unicornis (Forskål).

One specimen (young) from San Fabian (no. 3960; length 2.5 in.).

Chætodon unicornis Forskål, Descr. Anim., 63, 1775, Djidda.
Acanthurus unicornis, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, pt. 1, 1903 (1905), 402 (Honolulu; Hilo; Puako Bay, Hawaii).

Family SIGANIDÆ.

248. Siganus javus (Linnæus).

Two specimens from Bulan (no. 4092 and 4093; length 9 and 10 in.). Head 4.1 in length; depth 2.18; snout 2.1 in head; eye 3.35. Dorsal XIII, 10; anal VII, 9.

Teuthis javus Linnæus, Syst. Nat., ed. XII, 507, 1766; Day, Fishes India, 165, pl. XXXIX, fig. 5; Günther, Cat., III, 315 (Ceylon; Singapore; Amboyna; Hobson Bay).
Amphacanthus javus, Cuvier & Valenciennes, Hist. Nat. Poiss., X, 86 (118), (Pondicherry).

249. Siganus fuscescens (Houttuyn). *Palit.*

Apparently a very abundant species in the Philippines. The present collection contains 747 specimens from Bacon (no. 3382, 3622, 3623, 3923, 3924, 3440, 3500, 3501, 3502, 3513, 3851, 4006, 4007, 4143, 4144; length 1.5 to 8.5 in.), 2 from Jolo (no. 3518 and 3639), and 1 from San Fabian (no. 3864).

These have been carefully compared with specimens from Japan, Cavite, and Panay. They agree perfectly, even to the bars on the caudal.

Centrogaster fuscescens Houttuyn, Verh. Holl. Maat. Weet. Haarlem, XX, 1782, 333.
Amphacanthus fuscescens, Richardson, Ichth. China, 243, 1846.
Teuthis fuscescens, Günther, Cat., III, 321 (coast of Nagasaki).

250. Siganus virgatus (Cuvier & Valenciennes).

One specimen from Bacon (no. 3233; length 7.5 in.). Readily known by the bluish transverse lines on snout and interorbital and the oblique dark lines downward and forward from dorsal.

Amphacanthus virgatus Cuvier & Valenciennes, Hist. Nat. Poiss., X, 97 (133), 1835, Java.
Teuthis virgata, Günther, Cat., III, 323 (Philippines; China); Day, Fishes India, 166, pl. XL, fig. 3 (Andamans).

251. Siganus vermiculatus (Kuhl & Van Hasselt). *Pugut; Alama.*

Seven specimens from Zamboanga (no. 3251 to 3257; length 3.5 to 6.75 in.), 4 from Bacon (no. 3303 to 3306; length 3 to 4 in.), 3 from Philippines (no local label, no. 3800 to 3802; length 3 in.), and one very large specimen from San Fabian (no. 4037; length 11 in.).

Amphacanthus vermiculatus Kuhl & Van Hasselt in Cuvier & Valenciennes, Hist. Nat. Poiss., X, 92 (126), 1835, New Guinea.
Teuthis vermiculata, Günther, Cat., III, 317 (Philippines; Amboyna); Day, Fishes India, 166, pl. XL, fig. 1

252. Siganus lineatus (Cuvier & Valenciennes). *Samaral; Mororosa.*

Two from Bulan (no. 4056 and 4057; length 9.75 and 10.5 in.), and one from Bacon (no. 4039; length 10.2 in.).

Amphacanthus lineatus Cuvier & Valenciennes, Hist. Nat. Poiss., X, 95 (130), pl. 286, 1835, Vanicolo and New Guinea.
Teuthis lineata, Günther, Cat., III, 322.

253. Lo unimaculatus Evermann & Seale, new species.

Head 3.3 in length to base of caudal; depth 2.5; eye 4 in head; snout 1.9; opercle with a number of low thin vertical ridges; preopercle with somewhat similar oblique lines; lower edge of preopercle finely dentate; scales cycloid and very minute on body, the head nearly naked, having only a few scattered nonimbricated scales below eye and along side of snout; interorbital 3.75; pectoral 1.45; ventral scarcely shorter than pectoral; dorsal XIII, 10; anal VII, 9; ventral I, 3, I.

Body greatly compressed, elongate, the ventral and dorsal outlines nearly parallel from nuchal crest to base of twelfth dorsal spine; snout much produced, tubular, the maxillary 1.3 in eye; interorbital space but slightly convex; dorsal profile rising abruptly from behind the eye in a thin trenchant ridge; teeth in a single row, uniform in size, incisor-like, brown-tipped in the upper jaw, smaller and plain white in color in the lower, about

12 on each side in each jaw; origin of dorsal in vertical above base of pectoral, the first spine 1.6 in snout, the longest spine (the seventh) about equal to snout and half diameter of eye, the last spine equal to snout; origin of anal under base of seventh dorsal spine; first anal spine slightly longer than first spine of dorsal, the fourth spine slightly greater than snout; soft dorsal and soft anal pointed, the middle rays longest, about equal in the 2 fins and equaling the snout; caudal moderately forked, the lobes equal to snout and half eye; ventral not reaching origin of anal.

Color in alcohol, mottled brownish; snout, head and breast back to origin of dorsal and ventral fins rich brownish black, extending on side in a broad curve to middle of pectoral; interorbital space and side of head below eye paler; first dorsal spine black, the others yellowish white; first ray of pectoral black, rays of fin

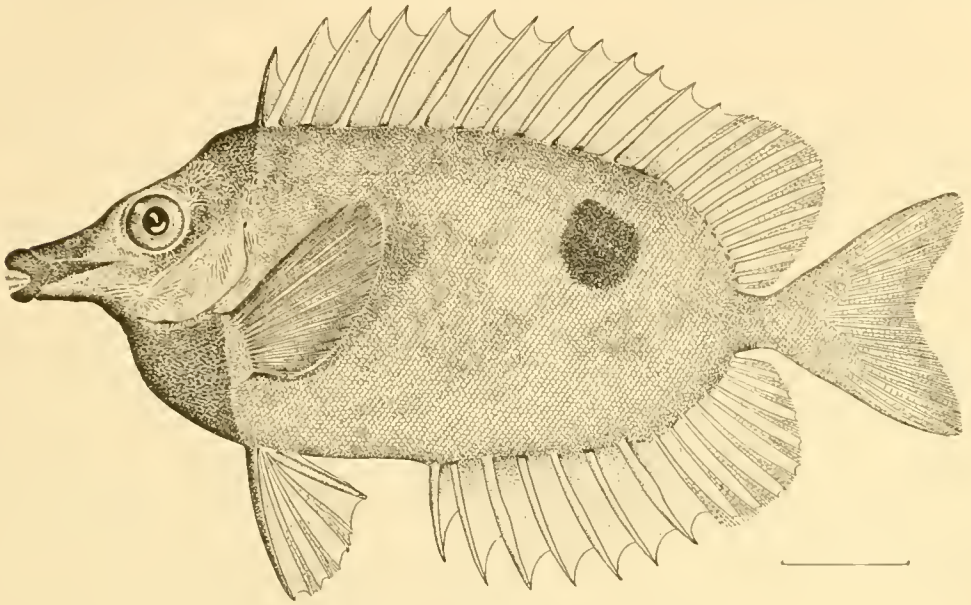

FIG. 19.—*Lo unimaculatus* Evermann & Seale, new species. Type.

whitish with some indistinct black blotches; skin of ventral spines blackish, rays of the fin white; soft dorsal and entire anal yellowish white, the spines of the latter with dark edges; caudal dusky along edges, otherwise yellowish white; a large round brownish black spot one-half larger than eye on lateral line under base of last 3 dorsal spines and first dorsal ray.

This species is related to *Lo vulpinis* (Schlegel & Müller), from which it differs in the more slender body and in the presence of the black lateral spot.

Only one specimen obtained, the type, no. 55915, U. S. National Museum (original no. 3538), 7.5 inches long, collected by Mr. Charles J. Pierson, at Bacon, Sorsogon, P. I.

Family BALISTIDÆ.

254. Balistes niger Mungo Park.

One specimen from Bacon (no. 3603; length 5.5 in.).

Balistes niger Mungo Park, Trans. Linn. Soc. Lond., III, 1797, 37, Sumatra; Günther, Cat., VIII, 218; Bleeker, Atlas, V, pl. CCXVI, fig. 1.

255. Balistes flavimarginatus Rüppell. *Pakol.*

One very large specimen (no. 4154; length 15 in.) from Bacon. Head 3 in length; depth 1.8; eye 5 in head; snout 1.2; interorbital 2.8; first dorsal spine 1.8; depth of caudal peduncle 3.5, its greatest width 5;

longest dorsal ray 1.75; longest anal ray 1.5; length of pectoral 2. Teeth very strong, the front ones conic; dermal plates strong and rough, 29 from gill-opening to base of caudal; preocular groove distinct.

Balistes flavimarginatus Rüppell, Atlas, Fische, 33, 1828, Red Sea; Günther, Cat., VIII, 223 (Red Sea; Amboyna).
Balistes (Pseudobalistes) flavimarginatus, Bleeker, Atlas, V, 113, pl. CCXXIV, fig. 3.

256. Balistapus undulatus (Mungo Park).

Nine specimens from Bacon (no. 3374, 3375, 3438, 3439, 3604, 4058 to 4060, and 4123; length 4.75 to 6.5 in.).

Balistes undulatus Mungo Park, Trans. Linn. Soc. Lond., III, 1797, 37, Sumatra; Günther, Cat., VIII, 226 (Red Sea; Zanzibar; Moluccas; Sumatra; Amboyna; Ceram; Zebu, Philippines; China; Japan).
Balistes (Balistapus) lineatus Bleeker, Atlas, V, 118, pl. CCXXIX, fig. 2.

257. Balistapus aculeatus (Linnæus). *Pugut.*

Nine specimens from Bacon (no. 3307, 3308, 3388, 3389, 3433 to 3435, 4118 and 4119; length 3.5 to 6.5 in.), and 2 from Zamboanga (no. 3364 and 3373).

Balistes aculeatus Linnæus, Syst. Nat., ed. X, 328, India; Günther, Cat., VIII, 223 (Ile de France; Island of Johanna; Zanzibar; Moluccas; Amboyna; China Seas; Fiji; Micronesia; Seychelles; Mauritius).
Balistapus aculeatus, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, 1903 (1905), 414, pl. LXII.

Family MONACANTHIDÆ.

258. Monacanthus chinensis (Bloch).

Three specimens from Bulan (no. 3259, 3260, and 4140; length 5 to 6.5 in.).

Balistes chinensis Bloch, Ichth., V, 24, pl. CLII, fig. 1, 1797, Brazil and China.
Monacanthus chinensis, Günther, Cat., VIII, 236 (North China; Pinang; Singapore; Shanghai); Bleeker, Atlas, V, 125, pl. CCXXII, fig. 2.

259. Monacanthus macrurus Bleeker. *Bunjong.*

One fine specimen from Jolo (no. 3693; length 7.5 in.), and one from Bacon (no. 3676; length 5.55 in.). These specimens show traces of dark bands at base of anal.

Monacanthus macrurus Bleeker, Nat. Tijds. Ned. Ind., XII, 226, 1857, Nias; Günther, Cat., VIII, 247, 1870.
Pseudomonacanthus macrurus Bleeker, Atlas, V, 131, pl. CCXXVIII, fig. 2.

260. Osbeckia scripta (Osbeck). *Samarang.*

Three specimens from Jolo (no. 3313 to 3315; length 4.5 to 8.2 in.). Color in spirits, yellowish with brown spots and reticulations; caudal 2.5 in length.

These specimens differ from typical examples of *O. scripta* in having the dorsal spine very short, its length being less than diameter of eye. They may represent an undescribed species, the describing of which we defer until additional material can be examined.

Balistes scriptus Osbeck, Reise nach Ostindien und China, I, 144, 1765, China Seas.
Balistes monoceros scriptus, Gmelin, Syst. Nat., 1463, 1788; after Osbeck.
Monacanthus scriptus, Günther, Cat., VIII, 252.
Osbeckia scripta, Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, 1903 (1905), 422, fig. 184 (Honolulu).

Family TETRAODONTIDÆ.

261. Lagocephalus hypselogeneion (Bleeker).

Three specimens from Bulan (no. 4023 to 4025; length 3.5 to 3.75 in.).

These examples have the fold of skin on lower posterior portion of side and tail well developed; caudal lunate and banded with numerous fine vertical lines; cheek with 5 subvertical bars of brown; upper half of body with numerous whitish spots. These seem to resemble Day's figure in every respect.

Tetraodon hypselogeneion Bleeker, Nat. Tijds. Ned. Ind., III, 300, 1852, Amboyna, Wahai.
Tetrodon hypselogenion, Günther, Cat., VIII, 277; Day, Fishes India, 702, pl. CLXXXIII, fig. 5.

262. Canthigaster bennetti (Bleeker).

Four specimens from Bacon (no. 3749; length 1.25 to 1.75 in.).

Tropidichthys bennetti Bleeker, Nat. Tijds. Ned. Ind., VI, 504, Amboyna.
Tetrodon bennetti, Günther, Cat., VIII, 301.
Canthogaster ocellatus Bleeker, Atlas, V, 80.
Psilonotus ocellatus, Bleeker, Atlas, V, pl. CCXIV, fig. 5.

263. Canthigaster compressus (Procé).

Two specimens from Philippines (no local label, no. 4018; length 2.2 and 2.75 in.).

Tetrodon compressus Procé, Bull. Soc. Philom. 1822, 130, Manila.
Tetrodon striolatus, Günther, Cat., VIII, 304.
Canthogaster striolatus, Bleeker, Atlas, V, 82.
Psilonotus striolatus, Bleeker, Atlas, V, pl. CCXIII, fig. 6.

264. Spheroides lunaris (Bloch & Schneider). *Botete.*

One specimen from San Fabian (no. 4033; length 3.25 in.).

Tetrodon lunaris Bloch & Schneider, Syst. Ichth., 505, 1801, Malabar; Günther, Cat., VIII, 274 (Philippines and many other places).
Spheroides lunaris, Jordan & Seale, Proc. U. S. Nat. Mus., XXVIII, 1905, 790 (Negros).

265. Tetraodon nigropunctatus Bloch & Schneider. *Dala.*

One specimen from Bacon (no. 4062; length 8.5 in.). This example is uniform black, the spicules silvery white, short and developed only on belly, back, and sides; the caudal, cheeks, snout, chin, and a spot on the middle of back naked; fins black except pectorals which have a slight wash of yellowish.

Tetraodon nigro-punctatus Bloch & Schneider, Syst. Ichth., 507, 1801, Tranquebar.
Tetrodon nigropunctatus, Günther Cat., VIII, 293.
Crayracion nigropunctatus, Bleeker, Atlas, V, 74, pl. CCVI, fig. 4.

Family OSTRACIIDÆ.

266. Ostracion tuberculatum Linnæus.

One specimen from Jolo (no. 3764; length 1 in.).

Ostracion tuberculatus Linnæus, Syst. Nat., ed. X, 331, 1758, India.
Ostracion cubicus Linnæus, Syst. Nat., ed. X, 332, 1758, India; Günther, Cat., VIII, 260 (Red Sea; Zanzibar; Seychelles; Mauritius; Ceylon; Amboyna; Ceram; South Australia).

267. Ostracion gibbosum Linnæus.

One specimen from Jolo (no. 3853; length 2.4 in.).

Ostracion gibbosus Linnæus, Syst. Nat., ed. X, 332, 1758, India; Günther, Cat., VIII, 258.
Ostracion turritus Day, Fishes India, 695, pl. CLXXXI, fig. 4.
Ostracion (Tetrosomus) turritus, Bleeker, Atlas V, 31, pl. CCIII, fig. 3.

Family SCORPÆNIDÆ.

HYPOMACRUS Evermann & Seale, new genus.

Hypomacrus Evermann & Seale, new genus of Scorpænidæ (*Hypomacrus albaiensis*).

This genus is related to *Sebastopsis* Gill, from which it differs in having the tenth to thirteenth pectoral rays much produced. The upper 9 rays are subequal, their length half that of head; length of tenth ray 1.2 in head, the eleventh to thirteenth successively shorter, the last 3 usually shorter than the upper 9 and not detached. (*ὑπα*, under; *μακρος*, long; referring to the produced lower pectoral rays.)

268. Hypomacrus albaiensis Evermann & Seale, new species.

Head 2.25 in length without caudal; depth 3.25; eye 3.75 in head; snout 3.75; interorbital 2 in snout dorsal XIII, 9 (the cotype has the soft dorsal deformed, with only 5 rays); anal III, 5; scales 5–26–13, about 16 tubules in lateral line.

Body moderately compressed, the head rather elongate, the lower jaw projecting, depth of caudal pedunele 4.1 in head; maxillary 2 in head, the distal end under the posterior margin of pupil, its distal width 1.5 in eye; mandible 1.75 in head; villiform teeth on jaws and vomer, none on palatines; gillrakers very small, 8 on lower limb of first arch; spines of head as follows: opercular 2; preopercular 2, the upper the larger, with a small superimposed spine on its base; bony stay across cheek with 2 spines, 4 above eye, 5 on each side of nuchal region; a distinct fringed orbital tentacle equal in length to pupil; a short dermal flap at base of each nuchal spine; a branched flap at nostril, and a rather long preorbital flap hanging over maxillary.

Body entirely scaled, head scaled; origin of dorsal above axil of pectoral, longest spine 3.2 in head; origin of anal under origin of soft dorsal, its longest ray 2 in head, the second anal spine the longest and strongest, 2.3 in head; origin of ventrals about midway between tip of upper jaw and origin of anal, their length 1.85 in head, their tips falling far short of anal; pectoral peculiar, the 9 upper rays short, about 2 in head, their tips scarcely extending past tips of ventrals; the lower part of fin elongate, composed of 7 simple rays, the longest 1.19 in head, their tips beyond line with origin of anal fin; caudal rounded, 1.65 in head.

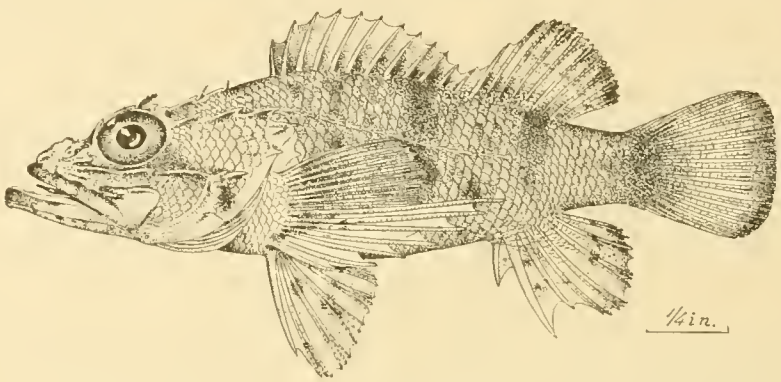

Fig. 20.– *Hypomacrus albaiensis* Evermann & Seale, new species. Type

Color in spirits, mottled brownish, a large yellowish area occupying entire upper two-thirds of opercle, extending to eye anteriorly, and posteriorly extending down and covering base of pectoral; a round black opercular spot posterior of and between the preopercular spines; about 5 indistinct rather narrow dark bands over back; spinous dorsal with irregular dusky markings, soft dorsal with dark base and tip, the mid portion whitish; anal with irregular dark markings, the most distinctive being a black spot on posterior axil of fin; ventrals shaded with dusky dots posteriorly; pectoral with brown dots on the short rays, the elongate rays white with a few scattered brown dots; caudal dusky at tip, a slight dusky wash on base of rays.

Type, no. 55902, U. S. National Museum, original no. 3866 (10,771), 2.5 inches long, from Bacon, Sorsogon, P. I., collected by Mr. Charles J. Pierson. Cotype, no. 20,006, Stanford University, a specimen 2.25 inches long, also from Bacon.

269. Sebastopsis scabra (Ramsay & Ogilby).

One specimen from Bacon (no. 4004; length 2.75 in.).

Sebastes scaber Ramsay & Ogilby, Proc. Linn. Soc. N. S. W., X, 1885, 577, **Shark Reef, Australia.**
Sebastopsis scabra, Jordan & Seale, Proc. U. S. Nat. Mus., XXVIII, 1905 (July 31), 791 (Negros).

270. Sebastopistes tristis (Klunzinger).

Three specimens from Bacon (no. 3612 to 3614; length 4 to 4.5 in.). This species is close to *S. nivifer* Jordan & Seale, described from Negros, P. I., differing in the orbital spines, the dermal flaps, and the color.

Scorpæna tristis Klunzinger, Synop. Fische des Rothen Meers, Verh. Zool.-Bot. Gesellsch. Wien, XX, 1870, 802, **Red Sea.**
Scorpæna bakeri Seale, Fishes of Guam, in Occ. Papers Bishop Mus., vol. I, no. 2, 1901, 120, **Guam.**

271. Pterois volitans (Linnæus).

Two fine specimens from Bacon (no. 3441 and 3445; length 6.5 and 6.75 in.).

Gasterosteus volitans Linnæus, Syst. Nat., ed. x, 296, 1758, Amboyna.
Pterois volitans, Günther, Cat., II, 122 (Egypt; South Africa; Cape of Good Hope; Madras; China; Amboyna).
Pseudomonopterus (*Pterois*) *volitans*, Bleeker, Atlas, IX, pl. CCCCXII, fig. 3.

272. Dendrochirus zebra (Cuvier & Valenciennes).

Four specimens from Bacon (no. 3574 and 3577; length 3.5 to 4.75 in.).

Pterois zebra Cuvier & Valenciennes, Hist. Nat. Poiss., IV, 269 (367), 1829, Ile de France; Günther, Cat., II, 126 (Amboyna; China; Madagascar).
Pseudomonopterus (*Dendrochirus*) *zebra*, Bleeker, Atlas, IX, pl., CCCCXI, fig. 1.

Family PLATYCEPHALIDÆ.

273. Platycephalus bataviensis Bleeker.

One specimen from Jolo (no. 3276; length 8 in.).

Platycephalus bataviensis Bleeker, Nat. Tijds. Ned. Ind., IV, 1853, 460, Batavia; Atlas, IX, pl. CCCCXX, fig. 4; Günther, Cat II, 188.

274. Platycephalus insidiator (Forskål). *Lacoy.*

On specimen from San Fabian (no. 3900; length 6.2 in.).

Cottus insidiator Forskål, Descr. Anim., 25, 1775, Red Sea.
Platycephalus insidiator, Günther, Cat., II, 177 (Calcutta; Ganges; China; Malayan Peninsula; Moluccas; Amboyna; Cape York; Australia; Red Sea; Port Natal; Cape of Good Hope).

275. Platycephalus macracanthus Bleeker. *Cacabit.*

One specimen from San Fabian (no. 3857; length 5.25 in.).

Platycephalus macracanthus Bleeker, Versl. Meded. Ak. Wet., 2d reeks, III, 1868–9, 253, Amboyna; Atlas, IX, pl. CCCCXIX, fig. 1.

Family CALLIONYMIDÆ.

276. Calliurichthys reevesii (Richardson)

Four specimens from Bulan (no. 4077 to 4080; length 5.75 to 6.5 in.).

Callionymus reevesii Richardson, Voy. Sulphur, 60, pl. 36, figs. 1–3 (not 4), 1845, Canton.

Family NOTOTHENIIDÆ.

277. Parapercis hexophthalma (Ehrenberg).

One specimen from Bacon (no. 3721; length 6.2 in.).

Percis hexophthalma Ehrenberg in Cuvier & Valenciennes, Hist. Nat. Poiss., III, 202 (271), 1829, Massuah; Günther, Cat., II, 239 (Louisiade Archipelago; Red Sea).

Family OPHICEPHALIDÆ.

278. Ophicephalus striatus Bloch.

Five specimens from Philippines (without local label, no. 3791 to 3795; length 3.1 to 4 in.).

Ophicephalus striatus Bloch, Ichth., x, 117, pl. CCCLIX, 1797, East Indies.
Ophiocephalus striatus, Günther, Cat., III, 474 (Loodianah; Ganges; Bengal; Pinang; Madras); Bleeker, Atlas, IX, pl. CCCXCIX, fig. 1.

Family GOBIIDÆ.

279. Butis leucurus Jordan & Seale.

Three specimens from San Fabian (no. 3858 to 3860; length 3.5 to 4 in.), and one from Bacon (no. 3728; length 3.45 in.). Species originally described from Negros; other specimens collected at Cavite by Dr. Geo. A. Lung and forwarded to Stanford University.

Butis leucurus Jordan & Seale, Proc. U. S. Nat. Mus., XXVIII, 1905 (July 3), 794, fig. 13, **Negros Island.**

280. Glossogobius biocellatus (Cuvier & Valenciennes).

Two specimens from Bacon (no. 3747 and 3745; length 3.5 and 3.75 in.). Close to *G. giuris*, but lower jaw less prominent, body more robust and head broader.

Gobius biocellatus Cuvier & Valenciennes, Hist. Nat. Poiss., XII, 55 (73), 1837, **Pondicherry**; Günther, Cat., III, 20; Day, Fishes India, 289, pl. LXIII, fig. 8.

281. Glossogobius giuris (Buchanan-Hamilton). *Cacabit.*

Nine specimens from Bacon (no. 3725 to 3727, 3729, 3741 to 3744, and 3749; length 4 to 9 in.), one from San Fabian (no. 3760), and one from Bulan (No. 4128).

Gobius giuris Buchanan-Hamilton, Fishes of the Ganges, 51 and 366, pl. 33, fig. 15, 1822, **Ganges River**; Day, Fishes India, 294, pl. LXVII, fig. 1; Günther, Cat., III, 21.

282. Oxyurichthys cristatus (Day).

One specimen from San Fabian (no. 3929; length 5.8 in.).

Eucteuogobius cristatus Day, Proc. Zool. Soc. Lond. 1873, 109, **Bombay.**
Gobius cristatus Day, Fishes India, 291, pl. LXII, fig. 8.

283. Valenciennea strigata (Broussonet).

Two specimens from Bacon (no. 3999; length 2.1 in.). Head 3 in length; depth 4.75; scales 150; dorsal VI–I, 18; anal I, 17; anterior dorsal rays elongate. Color white; a blue dark-edged band from angle of month to opercle, another indistinct band on preopercle.

Gobius strigatus Broussonet, Ichth., I, 1782, **Tahiti.**
Eleotris strigata, Cuvier & Valenciennes, Hist. Nat. Poiss., XII, 189 (251); Günther, Cat., III, 131 (Java; Amboyna; Celebes; Booroo; Tahiti); Günther, Fische der Südsee, 190, pl. 111, fig. E.

Family BLENNIIDÆ.

284. Salarias fasciatus (Bloch).

Ten specimens from Bacon (no. 3974; length 1.2 to 4 in.).

Blennius fasciatus Bloch, Ichth., V, pl. CLXII, fig. 1, 1797.
Salarias fasciatus, Günther, Cat., III, 244 (Borneo; Philippines; New Holland; Victoria Bank; Fiji Islands; Tonga Islands; Aneityum); Günther, Fische der Südsee, 201, pl. 115, fig. H.

285. Petroscirtes grammistes (Cuvier & Valenciennes).

Two specimens from Bacon (no. 3757; length 3.2 in.).

Blennechis grammistes Cuvier & Valenciennes, Hist. Nat. Poiss., XI, 210 (284), 1836, **Java.**
Petroscirtes anema, Günther, Cat., III, 236 (Amboyna; China); Günther, Fische der Südsee, pl. 115, fig. F.
Petroscirtes grammistes, Günther, Fische der Südsee, 197 (Yap; Kusaie; Amboyna).

Family ECHENEIDÆ.

286. Echeneis naucrates Linnæus.

One specimen from Bulan (no. 3740; length 10.5 in.).

Echeneis neucrates (misprint for *naucrates*) Linnæus, Syst. Nat., ed X, 261, 1758, **Pelago Indico**; Günther, Cat., II, 384 (many localities); Jordan & Evermann, Fishes North and Mid. Amer., 2269, 1898.

Family PLEURONECTIDÆ.

287. Platophrys javanicus (Bleeker). *Palad.*

One specimen from Bulan (no. 4049; length 8.25 in.). Anal 51; scales 74.

Rhombus javanicus Bleeker, Nat. Tijds. Ned. Ind., IV, 502, Batavia.
Pseudorhombus javanicus, Bleeker, Atlas, VI, 8, pl. CCXXXII, fig. 3; Günther, Cat., IV, 427 (Java); Day, Fishes India, 424, pl. XCII, fig. 2.

288. Platophrys russellii (Gray).

One specimen from Bulan (no. 4069; length 9 in.). Anal 59; scales 74.

Platessa russellii Gray, Ill. Ind. Zool., fig. 2.
Pseudorhombus russellii, Günther, Cat., IV, 424 (Umbilo River, Port Natal).

289. Platophrys neglectus (Bleeker). *Uguvanguray.*

Three specimens from San Fabian (no. 3390, 3619 and 3620; length 3.5 to 6.75 in.). Anal 57; scales 81.

Pseudorhombus neglectus Bleeker, Ned. Tijds. Dierk., III, 45, and Atlas, VI, 8, pl. CCXXXIV, fig. 1.

290. Platophrys pantherinus (Rüppell).

Two specimens from Bacon (no. 3409 and 3491; length 5.2 and 6 in.).

Rhombus pantherinus Rüppell, Atlas, 121, pl. 31, fig. 1, 1828, Red Sea.
Platophrys pantherinus, Bleeker, Atlas, VI, 11, pl. CCXXXIII, fig. 3; Day, Fishes India, 425, pl. XCII, figs. 3 and 4; Jordan & Evermann, Bull. U. S. Fish Comm., XXIII, 1903 (1905), 512.
Rhomboidichthys pantherinus, Günther, Cat., IV, 436 (Mauritius; Madagascar; Amboyna; Fiji).

291. Platophrys palad Evermann & Seale, new species. *Palad.*

Head 3.75 in length; depth 2.1; eye 6 in head; snout 4; maxillary 2.3, its distal end under middle of eye; dorsal 77; anal 60; scales 85; interorbital a very narrow trenchant ridge slightly higher than eye; jaws equal; canine teeth in anterior of jaws; gillrakers short and blunt, broader than long, 9 on lower limb, the curved

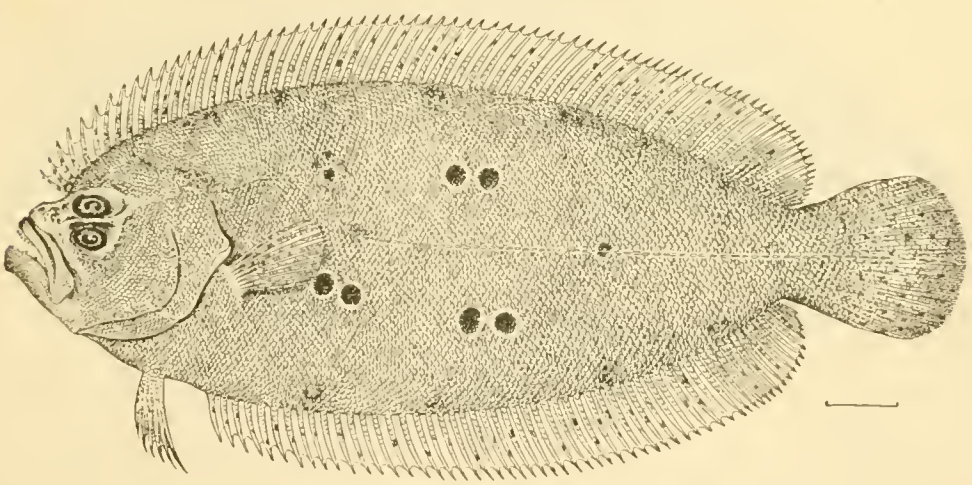

FIG. 21.—*Platophrys palad* Evermann & Seale, new species. Type.

portion of lateral line 3.5 in straight, the depth of the curve 3.1 in its length; longest dorsal ray 2.75 in head; longest anal ray 2.1 in head; colored pectoral 2 in head; caudal rounded, 1.25 in head. Color on left side.

Color in spirits, brownish; on each side of lateral line 2 large ocelli, each inclosing 2 large black spots; 2 very indistinct dusky blotches on the lateral line, one at posterior curve of lateral line, the other at the beginning

of posterior third of body; a row of indistinct ocelli at base of each vertical fin; numerous dusky dots and blotches on fins.

One large specimen from Bulan (no. 4050; length 15.5 in.). Type, no. 55898, U. S. National Museum, collected by Charles J. Pierson.

292. Psettodes erumei (Bloch & Schneider). *Uguerangueray.*

Two specimens from San Fabian (no. 3848 and 3849; length 4.75 and 6.5 in.). Head 3.6 in length; depth 2.5; eyes on right side. It may be that the sinistral specimens recorded by Günther and Bleeker are a different species.

Pleuronectes erumei Bloch & Schneider, Syst. Ichth., 150, 1801, "ad Tranquebarium."
Psettodes erumei, Günther, Cat., IV, 402 (China; Amboyna; Pinang; India); Day, Fishes India, 422, pl. XCI, fig. 4; Bleeker, Atlas, VI, 4, pl. CCXXXII, fig. 2.

Family SOLEIDÆ.

293. Achirus hartzfeldii Bleeker.

One specimen from "Philippine Islands" (no local label; no. 4012; length 4.5 in.). Anal 63; lateral line 98.

Achirus hartzfeldii Bleeker, Nat. Tijds. Ned. Ind., IV, 1853, 123, **Amboyna**; Atlas, VI, 25, pl. CCXLVI, fig. 1.
Aseraggodes hartzfeldii, Kaup, Archiv f. Naturgesch., jhg. XXIV, 1858, bd. I, 103.
Solea hartzfeldii, Günther, Cat., IV, 471 (Amboyna).

294. Synaptura sorsogonensis Evermann & Seale, new species.

Head 5.25 in length without caudal; depth 2.37; dorsal 74; anal 61; caudal 15; dorsal and anal continuous with caudal; pores of lateral line 141, of which 29 are in the short curved portion above the head; interorbital space scaled, scarcely greater than diameter of lower eye; upper eye covered by skin; the beaklike snout not extending around to a line with eye; upper nostril a distinct hollow papilla located in front of lower eye;

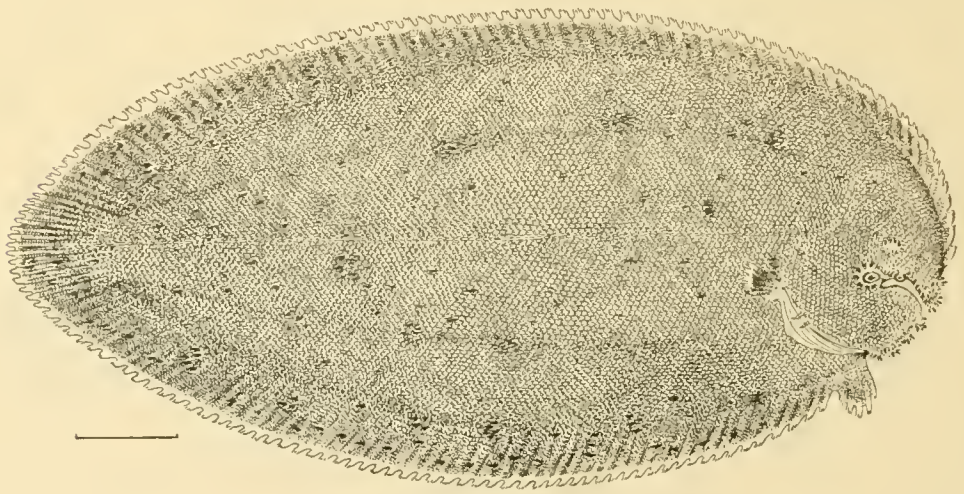

FIG. 22.—*Synaptura sorsogonensis* Evermann & Seale, new species. Type.

nostril of blind side greatly dilated and fringed; anterior part of head with numerous dermal fringes; dermal flaps scattered in groups over different portion of body, 4 such groups on lateral line and 1 on each side of body, alternating with the groups on lateral line; smaller groups along base of dorsal and anal fin; lateral line straight until it reaches head, where it makes a sharp curve ending on a line with anterior margin of upper eye; gillrakers obsolete; colored pectoral 3.75 in head; uncolored pectoral 4; dorsal beginning on snout in front of eyes, its middle ray 1.85 in head; middle anal ray 2 in head; colored ventral 2.9; caudal 1.3.

Color in spirits, brownish, the groups of dermal flaps described above blackish, colored pectoral black, tipped with white; margin of dorsal and anal white with a submarginal dusky area, more easily distinguished on under side.

This species is related to *S. pan*, but is distinguished by the greater number of rays and the dilated nostril.

One fine specimen from Bacon, Sorsogon, no. 4133 (10,825); length 9 in., type, no. 53916, U. S. National Museum, collected by Charles J. Pierson.

295. Pardachirus pavoninus (Lacépède)

One specimen from Bacon (no. 3383; length 5.5 in.). Anal 56; lateral line 100.

Achirus pavoninus Lacépède, Hist. Nat. Poiss., IV, 658 and 661; Bleeker, Atlas, VI, 24, pl. CCXLI, fig. 1.
Pardachirus pavoninus, Günther, Cat., IV, 479 (Pinang; Singapore; Moluccas).

296. Soleichthys heterorhinos (Bleeker).

One specimen from Bacon (no. 3927; length 4.2 in.). Anal 78; lateral line 112.

Solea heterorhinos Bleeker, Visch fauna Amboina, 64, Act. Soc. Sc. Indo-Ned., I, 64, 1856, Amboyna.
Solea heterorhinus, Bleeker, Atlas, VI, 17.
Solea heterorhina, Günther, Cat., IV, 466 (Celebes, Amboyna); Bleeker, Atlas, VI, pl. CCXC, fig. 2; Day, Fishes India, 426, pl. XCII, fig. 5.

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